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ABSTRACT

Research indicates immersion learners tend to process the second language predominantly for meaning, rather than both meaning and form. Immersion learners appear to be fluent in the second language, but closer scrutiny reveals serious gaps in grammatical accuracy. A study investigated the effect of focus-on-form instruction on the acquisition of agreement features in Spanish within the context of an elementary school immersion science class. Subjects were 63 ten-year-old learners in a two way partial immersion program, in which native speakers and non-native learners of Spanish learn side by side. Specifically, the study investigated whether incidental and implicit oral feedback would affect learners' knowledge of noun-adjective (N-A gender and number) and subject-verb (S-V) agreement in Spanish. Experimental classes received instruction in either N-A or S-V agreement and acted as a control for each other in the feature not instructed. Comparison classes received no instruction. The 6-week treatment period was followed by both immediate and 6-week delayed posttests. Results indicate no significant effect of instruction. Several factors could have contributed to these results: amount and nature of feedback, and inflation of unmarked forms in the data. (Author/MSE)

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ED 427 511

INTEGRATING LANGUAGE AND CONTENT IN AN EXPERIENTIAL SETTING: FOCUS-ON-FORM IN THE SPANISH PARTIAL IMMERSION PROGRAM

VOLUME ONE OF TWO

A Dissertation
submitted to the Faculty of the
Graduate School of Arts and Sciences
of Georgetown University
in partial fulfillment of the requirements for the
degree of
Doctor of Philosophy
in Linguistics

By

Miriam Stein, M.S.

Washington, D.C.
October 21, 1997

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The doctoral dissertation/~~master's thesis~~ of Miriam Stein entitled Integrating Language and Content in an Experiential Setting: ~~FONF~~ Focus-on-form in the Spanish Partial Immersion Program

submitted to the department/~~program~~ of Linguistics in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Graduate School of Georgetown University has been read and approved by the Committee:

Catherine Doughty, Ph.D.

Andrea Tyler

Department Chair/Program Director

April 2, 1998
Date

This dissertation/~~thesis~~ has been accepted by the Graduate School of Arts and Sciences.

4/6/98
Date

For the Dean

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INTEGRATING LANGUAGE AND CONTENT IN AN EXPERIENTIAL SETTING: FOCUS-ON-FORM IN THE SPANISH PARTIAL IMMERSION PROGRAM

Miriam Stein, M.S.

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ABSTRACT

Research indicates that immersion learners tend to process the second language predominantly for meaning, rather than for both meaning and form. Immersion learners appear to be fluent in the second language, but closer scrutiny reveals serious gaps in their grammatical accuracy. In order to find a possible way to remedy this situation, the present study investigated the effect of focus-on form (FonF) instruction on the acquisition of agreement features in Spanish within the context of an elementary immersion science class setting (Doughty and Williams, 1998; Long, 1991). Sixty-three ten-year-old learners in a two-way partial immersion program, where native speakers and non-native speakers of

Spanish learn side by side, participated in this study. Specifically, it was asked whether incidental and implicit oral feedback would affect the learners' knowledge of noun-adjective (N-A gender and N-A number) and subject-verb (S-V) agreement in Spanish. Three groups were compared for N-A agreement, and three groups were compared for S-V agreement. The experimental classes received instruction in either N-A or S-V agreement and acted as a control for each other in the feature not instructed. The comparison classes received no instruction. Treatment, which lasted for six weeks, was followed by immediate posttests and by delayed posttests six weeks later. Results from repeated measures MANCOVA and MANOVA showed no significant effect of instruction. Several factors could have contributed to these results: the amount of feedback provided, the nature of the feedback being too implicit to destabilize existing inaccurate linguistic knowledge, and the inflation of unmarked forms in the data.

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.....That is what learning is. You suddenly understand something you've understood all your life, but in a new way.

-Doris Lessing

To Harry, my beloved husband.

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CHAPTER 1

INTRODUCTION

1.0 *INTRODUCTION*

Research in classroom Second Language Acquisition (SLA) theory and language teaching methodology currently centers on investigating ways to integrate second language and content instruction in the classroom (Pica, 1995; Snow, Met and Genesee, 1989; Stern, 1990; Swain and Lapkin, 1989). The challenge for teachers and SLA researchers in content-based classrooms is to find a way to balance the content instruction with second language instruction (Snow et al., 1989). In an experiential setting, such as in immersion programs where the focus is predominantly on the content subjects (e.g., science and math), the teacher, for the most part, concentrates on the subject matter of instruction, ignoring to a large extent the children's second language development.

Occasionally, the teacher might want to pay attention to the learners' second language development but might not know how to incorporate language instruction into the curriculum. Sometimes the teacher resorts to teaching the linguistic forms in isolation, which might seem inappropriate in a strictly communicative setting of instruction (Swain and Lapkin, 1989). Often, even if the teacher is willing to devote time to language instruction, the teacher might have difficulty focusing on language teaching in addition to the content instruction, which seems to take precedence (Pica, 1995; Swain, 1991). This has led researchers to seek ways to solve this problem, so far with mixed results (Day and Shapson, 1991; Harley, 1989, 1993, 1998; Kowal and Swain, 1994; Lyster, 1994; Swain, 1991, 1998). Much research is still needed to find a balanced solution to this dilemma. The present study tried to address the problem by investigating the possibility of integrating focus-on-form (FonF) instruction (Long, 1991; Long and Robinson, 1998) in a content-based setting, i.e., by testing the effect of implicit negative feedback in a Spanish partial, two-way immersion program.

1.1 *FOCUS-ON-FORM INSTRUCTION (FonF)*

FonF instruction differs from a strictly analytic approach (Allen, 1988; Stern, 1990) in that it integrates grammar instruction into the subject-matter-based syllabus of the experiential approach. Rather than the teaching in which a syllabus revolves around forms, as is done in the analytic approach (Stern, 1990), a form is taught as part of meaningful content instruction. There is no clear consensus on how to implement FonF instruction at this time (Doughty and Williams, 1998). FonF can be realized in many different ways. It can, for example, be implemented by introducing into the content class special materials and tasks which center around one specific grammatical feature as was done by Harley (1989, 1998) and by Lyster (1994) in the French immersion programs. It may also be implemented by introducing special activities which will force the learner to produce output by engaging her/him in interaction and discussion about the target form (Swain, 1985). The use of a dictogloss where learners reconstruct a text previously read to them and then follow with a group discussion is an example of such an activity (Kowal and Swain, 1994; Swain, 1998). Another way to implement FonF instruction is by guiding the learner towards processing the input; this type of instruction is called processing instruction (Van Patten, in press; Van Patten and Cadierno, 1993). Input enhancement (Sharwood Smith, 1993), whereby the target form gets highlighted in the input in some way, was successfully used by Doughty (1991) as a type of FonF and by Jourdenais, Ota, Stauffer, Boyson, and Doughty (1995). FonF can also be realized as negative feedback which may range from very explicit to very implicit (Carroll and Swain, 1993). The importance of *timing* the feedback so that it is provided precisely when the learner produces or interprets a form was demonstrated by Lightbown (1992) in two experiments in an ESL communicative setting.

The present quasi-experimental study's objective was to test the effect of an implicit type of feedback in a content-based Spanish immersion program. This immersion program differs from the French Canadian immersion programs generally discussed in the literature in two ways: First, instruction in the second language is partial (50%) as compared to total (100%) in the early grades. Second, the student body consists of English-speaking and of Spanish-speaking children usually divided into equal groups. The Spanish-speaking children are, for the most part, second-generation Spanish speakers; they were born in the U.S. but speak Spanish at home with one or both parents. These Spanish speakers are in the process of developing literacy skills in Spanish.

Because it appears very important for teachers in immersion programs to use language instruction that is not only content compatible (Harley, 1998) but which will not interrupt the flow of the content instruction, the negative feedback used in this study was that of a recast (target-like reformulation of the learner's utterance) followed by a tag question, provided precisely at the time that the error was detected by the teacher. This investigation differs from previous FonF feedback studies in several ways. Recasting was used by Muranoi (1996) during interactional activities, but within the setting of a regular foreign language rather than a content-based classroom. The effect of recasts followed by a tag question was investigated outside the classroom in a laboratory experiment by Ortega and Long (1997). None of these experiments was conducted in a true experiential, content-based classroom setting such as the one in the present study. Furthermore, only one type of FonF instruction was used in the present study, i.e., recasts with a tag question. In comparison, other FonF studies have used a combination of FonF techniques such as input enhancement, feedback, explicit explanations of a structure, etc. (Harley, 1998; Leeman, Artegoitia, Fridman, and Doughty, 1995; Lightbown, 1992; Lyster, 1994). The most relevant FonF feedback study is that of Doughty and Varela (1998), which used recast in a content-based ESL classroom. However, the typical recast provided in that study consisted of two parts, a repetition of the learner's inaccurate utterance with rising intonation and stress on the error at first, which was then followed by the recast of that utterance. Additionally, Doughty and Varela used pre-determined tasks, which, although compatible with the content instruction, were chosen to elicit the target forms (past and past conditional). Furthermore, the individual learner and sometimes the whole class was encouraged to repeat the recast. This production of output could have added an unwanted variable to the study (Doughty, personal communication). In addition, a repetition of the recast by the whole class could be viewed as a drill in the target form. Finally, recast-like feedback was provided in the written as well as in the oral mode. The present study differs markedly from Doughty and Varela's study in that, in the present study, the recast was provided without an attention-getting device such as the initial repetition of the student's inaccurate utterance. Furthermore, feedback was provided only orally, as the errors arose *naturally* during the flow of a content class (science class in this case), without any planned activities or tasks designed to elicit the target form as was the case in Doughty and Varela's study. Moreover, neither the individual learner nor the class as a whole was ever encouraged to repeat the recast. In fact, except for occasional instances in some oral reports, learner's did not repeat the recast at any time. The present study followed closely Long's initial conceptualization of FonF (1988, 1991):

> ...whereas the content of lessons with focus on forms is the forms themselves, a syllabus with a focus-on-form teaches something else -- biology, mathematics, workshop practice, automobile repair, the geography of a country where the foreign language is spoken, the cultures of its speakers, and so on-- and overtly draws students' attention to linguistic elements as they arise *incidentally* in lessons whose overriding focus is on meaning or communication (Long, 1991:45, italics added)

As mentioned earlier, ways to implement focus-on-form vary (Doughty and Williams, 1998; Long, 1988,1991). The present study followed Long's (1991) suggestion:

> One proposal is for lessons to be briefly "interrupted" by teachers when they notice students making errors which are (1) systematic, (2) pervasive and (3) remediable. The linguistic feature is brought to the learner's attention in any way appropriate to the student's age, proficiency level, etc. before the class returns to whatever pedagogic task they were working on when the interruption occurred (Long, 1991:46)

The present study's goal was to test the effect of a very incidental and implicit type of FonF, which would target "systematic, pervasive and remediable errors" (Long, 1991), would be easy for the teacher to implement without previous planning, and would be non-intrusive to the content instruction.

1.2 *THE STATEMENT OF THE PROBLEM: achieving analyzed linguistic knowledge in the immersion program.*

Learners in immersion programs in the U.S. and Canada are exposed primarily to an experiential teaching approach characterized by focus on meaning, real language use and substantive topics (Harley, 1993; Stern, 1990). While learners in these programs develop automaticity in the second language, they do not always develop a process of analysis of linguistic knowledge (Bialystok, 1988, 1991a, 1991b, 1994a; Swain, 1985). Language proficiency, however, may be defined as the development of linguistic mental representation and its interaction with the cognitive processes of analysis and control (Bialystok, 1988, 1991a, 1991b, 1994a).

If language is assigned a mental representation, then the processing component by which language becomes explicit, structured and interconnected, is called the process of analysis of linguistic knowledge (Bialystok, 1991b). Linguistic knowledge most often develops out of implicit representations we have assigned to the world. A child, for example, will "know" that a ball is round, but may have no concept of round other than the one associated with the ball. This can be considered implicit knowledge. When the child makes this knowledge explicit by assigning an independent meaning to the word "round" and by organizing his/her concepts of shapes to accommodate that trait, then the child has developed his/her cognitive process for analysis. Once this knowledge becomes explicit, it can be symbolized in language, music, drawing, etc. and can be used to refer to meanings, concepts and events (Bialystok, 1991a). Specifically, analyzed linguistic knowledge enables the child or adult to use the known structure in new contexts, to decipher language, especially written forms and to modify that structure for different purposes (Bialystok, 1988).

While the experiential approach exposes the learners to natural language, it might not always make the form salient enough for the learner to gain analyzed linguistic knowledge (Allen, Swain, Harley, and Cummins, 1990; Harley, Allen, Cummins, and Swain, 1990; Harley, 1993; Stern, 1990). This is particularly true for any immersion program (Swain, 1985). Research has shown that immersion learners are exposed primarily to comprehensible input in the classroom (Krashen, 1982). This input remains largely at the level of unanalyzed, semantic knowledge (Harley, 1993; Swain, 1985). An example of how linguistic knowledge can develop from being organized around semantic notions to more formal ones is provided by Karmiloff-Smith (1986). Karmiloff-Smith gives the example of the French *un* which the children use at first in contexts of non-specific reference and as the numeral "one". At this point, the children consider these contexts as separate semantic contexts. Only after the children reorganize the separate representations, so that the same forms are structurally linked together under the formal category of indefinite article, can a process of analysis be considered to have taken place.

Language learners constantly reorganize their knowledge of the linguistic system to progressively understand its formal structure. This process of analysis results in new analyzed symbolic representations which often emerge out of the non-analyzed or semantic representations. When the learner engages in a process of analysis of linguistic knowledge, the semantic knowledge that connects the form to contexts through meaningful relations is still present; however, the learner has added another level of organization based on formal structure to the knowledge of language (Bialystok, 1991b). Thus, language analysis implies making the necessary form-meaning connections for acquisition to take place (Bialystok, 1988; Swain, 1985). This does not necessarily mean the learner is able to articulate a syntactic or morphological rule, however. It may mean only that the learner knows how to use the rule, independently of metalinguistic knowledge which would allow him/her to articulate the rule (Bialystok, 1988, 1994a; Ellis 1994b). Analyzed knowledge may enable the learner to *generate* a rule, but it is not necessary for the learner to generate a rule in order to demonstrate that the knowledge is analyzed (Bialystok, 1988:40). Furthermore, the acquisition of analyzed knowledge is not equivalent to instant proficiency or fluency in the language (Bialystok, 1988, 1994).

Fluency, according to Bialystok, is directly related to the second process which defines language proficiency; this is the process of control of linguistic knowledge. "Control is the process of selective attention that is carried out in real time" (Bialystok, 1994a:160). Since sources of information abound when we are engaged in processing language, it is important for the language learner to attend to the necessary information without being distracted by misleading or unimportant cues. According to Bialystok, the highest degree of control over linguistic information is achieved when implementing intentional selective attention, and its greatest behavioral outcome is often fluency. Fluency, according to Bialystok, "is the result of skilled control procedures for selecting and integrating information in response to problems" (by problems, Bialystok means a response to a language situation) (Bialystok, 1991a:72). For learners in regular foreign language classrooms, fluency is often an elusive component (Bialystok, 1991a), perhaps because the learners are often exposed to language analysis in which the emphasis is on knowing how to articulate a rule, rather than on how to use it appropriately (Sharwood Smith, 1994). Immersion learners, on the contrary, seem to have achieved fluency in the second language. Immersion learners' language is characterized by an apparent automaticity, which Bialystok characterizes as an aspect of having achieved control over linguistic knowledge (Bialystok, 1991a). Immersion learners can converse about many academic and non-academic topics in the second language without any difficulty. They have access to a rich vocabulary without the halting pauses and stumbles or searching for words and structures which characterize second language learners in regular foreign language classrooms. Furthermore, their pronunciation is often native-like (see section 3.3.5).

However, it is not known whether immersion learners have truly achieved control of linguistic knowledge. Although immersion learners superficially appear to be fluent in the second language, a close examination of their language reveals that they often lack grammatical accuracy in their output. Furthermore, research indicates that immersion learners fall behind the native speakers in many aspects of grammatical accuracy (Allen et al., 1990; Genesee, 1983, 1987; Harley, 1993; Harley and Swain, 1984; Swain, 1985, 1991). In particular, research in Spanish immersion programs in the U.S. has demonstrated that immersion learners in the elementary grades lack grammatical accuracy in noun-adjective and subject-verb agreement features (Barfield and Rhodes, 1994; Boyd, 1975; Christian, 1996; Cohen, 1974a; Plann, 1979;).

Data from the present study indicate, for example, that often a learner uses verb morphology indiscriminately and with a high degree of variability with respect to subject-verb agreement, e.g., *yo tengo* (I have, first person sing.) (which could be formulaic), but then, *yo tuviste* (I had, second person sing.), *yo tener* (to have, infinitive) *yo piensa* (I think, third person. sing.), *yo hace* (I do, third person sing.), etc. Apparently, this English-speaking immersion learner in the present study has not reorganized her linguistic representations sufficiently to link the individual subjects and verbs together under the formal category of subject-verb agreement. Additionally, research has shown that the immersion learner for the most part processes language by paying attention to meanings exclusively (Swain, 1985). What seems to be missing in the example above, then, is the *interaction* of the two cognitive processes of language analysis and control with respect to agreement features (Bialystok, 1988, 1991, 1994a). This interaction would enable the immersion learner to pay attention (control) to analyzed knowledge in order to retrieve it *accurately* in real time[1].

One way to encourage the learner to gain analyzed linguistic knowledge is through instruction which focuses on the code (Doughty, 1991, 1993a; R. Ellis, 1993a; Lightbown, 1992; Long, 1991; Terrell, 1991; VanPatten, in press; White, 1987). The present study's purpose, therefore, was to test the effects of a FonF teaching approach incorporated into the experiential setting of a partial, two-way, Spanish immersion program. Some research exists on the incorporation of a FonF approach in experiential settings, both in English and Spanish content-based classes (Doughty and Varela, 1998; Leeman et al., 1995; Lightbown, 1992; Lightbown and Spada, 1990; Spada and Lightbown, 1993). However, to my knowledge, none has been reported from Spanish immersion programs.

As noted earlier, an immersion program typically does not include provision of consistent, systematic corrective feedback and/or explicit language instruction incorporated into the content syllabus (Allen et al., 1990; Chaudron, 1986; Spada, 1990; Swain, 1985, 1991; Swain and Lapkin, 1989), and the immersion program investigated here was no exception. Although immersion learners are sometimes exposed to some explicit grammar instruction, this is usually done in isolation, separate from the content instruction. For learners to make the necessary form-meaning connections, an integration of form and content, where neither is taught in isolation, is probably needed (Swain, 1985; Swain and Lapkin, 1989). Central to the concept of making form-meaning connections is the role attention plays in the acquisition process (Lightbown, 1992; Robinson, 1995; Schmidt, 1990, 1994; Terrel, 1991; Tomlin and Villa, 1994). In order to develop analyzed linguistic knowledge, it has been suggested that learners might need to *notice* the form in the input (Schmidt, 1990, 1994) and to notice the difference or gap between their output and that of the native speaker (Krashen, 1983[2]; Schmidt and Frota, 1986). FonF instruction aims at helping the learner notice the form and/or the gap at the moment the learner is engaged in producing or interpreting something meaningful (Lightbown, 1992). Thus, the FonF instruction used in the present experimental study was that of implicit, incidental corrective feedback (recasts) (Doughty, 1993b; Doughty and Varela, 1998; Lightbown, 1992; Ortega and Long, 1997; Schachter, 1984, 1986), which aims at drawing the learner's attention to the gap between his/her own output and that of the native speaker precisely when the learner is engaged in producing a meaningful utterance.

The present study's overall objective, then, was one of *integration*: integrating language and content, form and meaning, experiential and FonF approaches, unanalyzed and analyzed language, and learning and acquisition (Allen, 1988; Bialystok, 1978, 1988; Krashen 1978, 1982; Leeman et al., 1995; Long 1991; McLaughlin, 1978; Schachter, 1984; Sharwood Smith, 1981; Snow, et al., 1989; Stern, 1990; Stevick, 1980; Swain and Lapkin, 1989).

1.3 *THE TARGET OF INSTRUCTION*

The target forms for instruction were the Spanish subject-verb (S-V) and noun-adjective agreement (N-A) features in the verb and the noun phrase, respectively. The literature on Spanish immersion has identified these forms as pervasive and consistent problems in grammatical accuracy by native speakers of English in the Spanish immersion elementary classes (Barfield and Rhodes, 1994; Boyd, 1975; Christian, 1996; Cohen, 1974a, 1974b; Plann, 1979). Specifically, learners in these programs tend to use a default, unmarked verb form which often is the third person singular (Plann, 1979) but may also be the infinitive form (the present study). For the noun-adjective agreement feature, learners tend to use the default unmarked masculine singular in all contexts, even if these require a feminine plural form (Boyd, 1975; Plann, 1979). In view of this preference for the use of the unmarked forms by immersion learners, FonF instruction in the present study concentrated on providing feedback on the marked forms only; the expectation being that from implicational relations (Eckman, Bell and Nelson, 1988;

Doughty, 1991; Gass, 1979; Zobl, 1985), learners would improve both in the acquisition of marked and unmarked forms.

Within the noun-adjective agreement, the data in the present study were analyzed separately for number and gender agreement. Research in the acquisition of gender agreement in Spanish and French by English-speaking children (Boyd, 1975; Ervin-Tripp, 1974; Plann, 1979) indicates that number agreement is more easily acquired than gender agreement. The present study, therefore, hypothesized, that the acquisition of number agreement would yield better results than the acquisition of gender agreement. Furthermore, studies suggest that "meaningful morphology" in the verb-phrase is more easily acquired than non-meaningful morphology in the noun-phrase (VanPatten, 1994, in press). It was hypothesized, therefore, that subject-verb agreement would obtain better results than noun-adjective agreement, especially N-A gender agreement.

1.4 *THE RESEARCH QUESTIONS*

It is important to keep in mind that, when studying second language acquisition theory, researchers are interested not only in observing the learner's output and demonstrated ability for interpretation in the second/foreign language, but are mainly interested with arriving at explanations for the observed behavior, which will support or not support SLA theory. Thus, even though it is difficult to know what goes on in the mind of the learner, the present study addressed the following questions based on the theory of second language acquisition.

1. Can FonF instruction be integrated within a predominantly experiential, content-based approach in the immersion program?

2. If so, how effective is FonF? Is it evident from the learner's control of linguistic knowledge that FonF is effective with respect to the Spanish subject-verb and noun-adjective agreement features? Specifically, does the learner's productive (written and oral) output and interpretation ability Indicate that incidental and implicit corrective feedback affected the learner's developing system sufficiently to push the learner into integrating semantic, unanalyzed linguistic knowledge with more syntactic, analyzed knowledge?

3. Is there a long-term effect from FonF instruction?

More specific questions were:

4. Is there a difference between the acquisition of number and gender agreement features in the noun phrase?

5. Is there a difference between the acquisition of "meaningful morphology" (verb phrase) vs. the acquisition of "less meaningful" or redundant morphology (noun phrase)?

6. Finally, does an emphasis of implicit feedback on marked forms result in the acquisition of marked and unmarked forms? ("Markedness" is discussed in Chapter 4.)

1.5 *THE HYPOTHESES*

Based on the discussion above, and in view of the fact that no previous studies investigated the effect of totally implicit and incidental feedback by itself (without an added component such as repetition of the form or in combination with other FonF techniques) in an immersion program, the following null hypotheses were proposed:

Hypothesis 1

FonF instruction, specifically, implicit, incidental negative feedback in the form of recasts, is not effective. Its possible effect on the learner's developing system shows no statistically significant gains between the pretest and immediate and delayed posttests.

Hypothesis 2

The gains from FonF instruction are not evident in the learner's ability for interpretation or in the written and oral production of the target form.

Additional directional hypotheses (see section 1.3) are the following:

Hypothesis 3

The gains (if any) in number agreement will be higher than the gains in gender agreement (Boyd, 1975; Plann, 1979; Van Naerssen, 1986).

Hypothesis 4

The gains (if any) in "meaningful morphology" in the verb-phrase will be higher than the gains in "less meaningful morphology" in the noun phrase (VanPatten, 1994, in press).

Hypothesis 5

Feedback on marked forms will show gains (if any) in marked and unmarked forms (Doughty, 1991; Eckman, Bell and Nelson, 1988; Gass, 1979; Zobl, 1983, 1985).

1.6 *THE STUDY*

In order to answer these questions, a quasi-experimental study on the acquisition of agreement features in the Spanish noun and verb phrase in an elementary partial immersion program was conducted. Four intact classes, two fourth grades and two fifth grades participated in this study. The fourth grades were randomly assigned to the treatment of subject-verb agreement in the morning class and noun-adjective agreement in the afternoon class. The two fifth grade classes were the comparison groups, which received no treatment[3].

There was an initial number of 72 subjects but due to absences or disabilities which prevented some learners from completing all the tasks, the final number of subjects participating in this study was 63. Approximately half of these subjects were English speakers, and the other half were native Spanish speakers (for the most part, second- generation, native Spanish speakers). The data were analyzed separately for the native Spanish-speaking and the native English-speaking subjects. The teacher, a second-generation Spanish speaker, was the same for both fourth grade experimental classes. The data were subjected to quantitative analysis predominantly and to qualitative analysis when pertinent to the discussion.

1.7 *SIGNIFICANCE OF THE STUDY*

This investigation should contribute to the SLA field, first, by providing empirical data on the effects of operationalized implicit FonF instruction. Specifically, this study should shed light on the effectiveness of incidental, implicit corrective feedback (recasts) provided naturally within the context of a content-based classroom. Second, the findings should provide information about the benefits of integrating language and content instruction in the immersion learner's acquisition process of the target language. Third, this study should provide the field of SLA in general, and immersion research in particular, with empirical data on the acquisition of Spanish as compared to the more prevalent ESL research in the U.S. or French immersion research in Canada. More specifically, the study should contribute to the field of Bilingual Education in the U.S. by providing information about integrating language and content in a bilingual classroom where approximately half the students speak Spanish and half speak English as their native language.

1.8 *OPERATIONALIZATION OF TERMS*

Focus-on-form

Focus-on-form (FonF) instruction refers to instruction on the form which ranges from implicit to explicit, from proactive (pre-planned) to reactive instruction and is always provided in a meaningful context (Doughty and Williams, 1998). As such, FonF means not teaching the forms in isolation at any time. The present study used *implicit and incidental* focus-on-form based on Long's (1988, 1991) original conceptualization of the term. For this study's purpose, the main characteristic of FonF instruction was that it should encourage the learner to make form-meaning connections. Additionally, FonF did not interfere with the flow of classroom activities or the content objective in any way (Doughty and Varela, 1998). Furthermore, there were no special FonF activities introduced into the regular classroom curriculum, such as was the case in some functional-analytic studies (Harley, 1989, 1998; Lyster, 1994) or other FonF studies (Swain, 1998; Williams and Evans, 1998). Nor were there special tasks geared to elicit the target form as was the case in the science experiments conducted by Doughty and Varela (1998). Rather, FonF in this study was realized in the form of implicit and incidental feedback provided by the teacher during everyday Spanish immersion science class, where instruction varied at times from group work to teacher-fronted. Language instruction focused on only one target feature at a time (Doughty and Varela, 1998; William and Evans, 1998). A transcript from the recorded data in the experimental class illustrates how FonF was non-intrusive and did not interrupt the flow of instruction. The following is an excerpt during an activity in which the students were reporting what their predictions on a certain science experiment were. The italicized verbs indicate first the error and then the recast by the teacher.

1) S: nosotros
we

T: no oigo
I don't hear

S: nosotros *piensa* que el agua..
we think (third person singular)

T: *pensamos, ¿no?*
we think (first person plural)

S: el agua va ser..
the water will be..

T: no oigo
I don't hear

S: en el parte de arriba
on the top

T: huumm

S: el aceite debajo del agua
the oil under the water

T: aha

S: y el alcohol debajo del aceite
and the alcohol under the oil

As the example above indicates, FonF did not interrupt the flow of the activity in any way.

Feedback

For this study's purpose, feedback consisted of an *oral* recast, which is a target-like, implicit and incidental reformulation of the learner's inaccurate utterance. The recast could consist of only part of the learner's overall utterance, but always consisted of a whole noun or verb phrase. The recast was provided precisely when the learner was concentrated in expressing a meaningful utterance. The learner was never encouraged or expected to repeat the correct reformulation. Nor was the learner's attention drawn to the form in any explicit way, either by the teacher's repetition with high rising intonation of the learner's inaccurate form (Doughty and Varela, 1998), or by following part of the inaccurate utterance with a question such as *what?* (Muranoi, 1996). Rather, in the present study, the teacher followed the reformulation with a tag question (Ortega and Long, 1997) and then, in order to prevent the learner from producing any output, the teacher **immediately** continued with the content instruction. The tag question could be either *¿sí?* or *¿no?* depending on which one the teacher felt more comfortable using at the moment. The teacher in this study chose *¿no?* for all the tag questions.

The sequence looked like this:

2) T: ¿Cómo son las rocas?
How are the rocks?

S: Unos de las rocas está *pesado*.
Some of the rocks are heavy (sing., masc.)

T: Las rocas son *pesadas, ¿no?*
The rocks are heavy, right (pl., fem.)

T: A ver, Eufebio, continúa...
Let's see, Eufebio, continue...

3) T: Pensaba que todas las rocas son duras, ¿no?
I thought that all the rocks are hard, right?

S: No, porque unos *tiene*
No, because some has (have)

T: [*tienen,¿no?*]
(have, right?)

S: Suave
Soft

T: [Oh! como de arena!
[Oh! as of sand!

The examples above illustrate how the teacher's feedback was not repeated by the learner and how the teacher in example 2) and the student in example 3) continued with the content of the discussion after the feedback.

While one could argue that the tag question might have added an explicit component to the feedback, it is the researcher's contention that the feedback on the whole was still implicit in nature. The reason for this is that the degree of explicitness added by the tag question could be considered minimal, because it does not make reference in any way to the error itself, in contrast to an explanation or to the attention-getting devices mentioned earlier. Additionally, since the content of the lesson continued immediately, the learner was not encouraged to answer the tag question in any way at any time. Together, then, the implicit recast plus a very minimally explicit tag question most likely places the feedback provided in this study at the implicit end of the implicit-explicit continuum.

Partial immersion

Refers to an immersion program in which subjects are taught half the day in Spanish and half the day in English.

Two-way immersion

Refers to an immersion program composed of learners who are native speakers of English and learners who are native speakers of Spanish (mostly second generation) distributed equally, learning in both languages.

Analysis and control as measures of language proficiency. Following Bialystok (1988, 1991a, 1991b, 1994a) analysis of linguistic knowledge is the process by which the mental representations of this knowledge, which were organized exclusively around meanings in the form of unanalyzed knowledge, become structured, more explicit and organized around forms (Bialystok, 1991a, 1994a). Crucial to the process of analysis is the learner's ability to make form-meaning connections. Control refers to the selective attention to a mental representation of a form in order to retrieve it while producing or interpreting a meaning in real time. Control is directly related to fluency in the language. Control of linguistic processing can be done with or without awareness. Together, the learner's capacities to engage in the processes of analysis and control are measures of his/her language proficiency (Bialystok, 1991a, 1991b, 1994a).

1.9 *OUTLINE OF THE STUDY*

This dissertation is divided into seven chapters. Immersion programs in the US. and Canada are discussed in the second chapter, which includes a description of the different immersion programs, as well as a review of the literature on the immersion learners' second language proficiency. Theoretical assumptions underlying two-way immersion programs are outlined as well. The third chapter presents some of the important issues to be considered in instructed SLA, such as analytic versus experiential second language instruction, and known attempts to integrate language and content in experiential settings. Additionally, this chapter discusses FonF instruction in detail and presents the different cognitive theories currently prevalent in SLA research. Finally, Chapter Three reviews the literature on implicit, negative feedback. Chapter Four discusses the targets of instruction for the present study, which are agreement between subject and verb in the verb phrase and between nouns and adjectives in the noun phrase. The latter includes a separate study of gender and number agreement. Additionally, Chapter Four includes a discussion of markedness and the processes involved in the acquisition of agreement features. Chapter Five presents the procedure used in this study, including a description of the pilot study, research site, subjects and teachers, data collection procedures, type of feedback, data coding framework, and analysis procedures. The results of the study are presented in Chapter Six, and Chapter Seven presents the discussion and some additional analyses. Finally, Chapter Seven also includes the conclusion, limitations of the study, a summary of the findings and possibilities for further research.

1.10 *SUMMARY*

Second language instruction in an immersion program is problematic because teachers either devote most of their time to content instruction with little or no time left for language instruction, or teachers are not sure of how to incorporate language instruction into the content instruction. Ideally, one would want to integrate language and content teaching at all times in the immersion program. Therefore, this study tried to address the problem by testing the effects of FonF instruction in an immersion program. FonF instruction differs from focus on forms in that the form is never taught in isolation but is incorporated into the content instruction. The present study is different from all other studies on FonF, because, in addition to taking place in a purely communicative setting, FonF feedback in the form of a recast was totally implicit and incidental without an initial attention-getting device and without previous planning of activities to elicit the target form. Furthermore, this study differs from other FonF studies in that the instruction provided (recasts) is the only FonF instruction given; therefore, only one independent variable is responsible for the results obtained.

The statement of the problem was discussed in Bialystok's terms of achieving analyzed linguistic knowledge. Research on second language acquisition by immersion learners shows that learners appear to be fluent in the language but lack grammatical accuracy. According to Swain (1985), this is due to the learner's reliance on semantic processing to the exclusion of syntactic processing (language analysis). In order to achieve analyzed linguistic knowledge, it is necessary for the immersion learner to make form-meaning connections. Control of this knowledge allows the learner to retrieve the necessary forms and meanings in real time. The present study's objective, then, is to encourage the learner to achieve analyzed knowledge, i.e., to improve grammatical accuracy through implicit and incidental FonF instruction in the form of recasts.

The main question is whether incidental and implicit FonF instruction has any effect on the immersion learner's acquisition of subject-verb and noun-adjective agreement features in Spanish. Due to the lack of previous studies such as this one (entirely incidental and implicit feedback in an immersion setting), the main hypotheses were stated in the null form.

The study was carried out in two fourth grade and two fifth grade two-way immersion classes, where the fourth grades were the experimental (treatment) classes and the fifth grades were comparison classes. Additionally, the fourth grades acted as control for each other in the feature not instructed, i.e., the morning class received treatment in subject-verb agreement, while the afternoon class received treatment in noun-adjective agreement. Oral feedback in the form of a recast followed by the tag question *¿no?* was given by the teacher in the experimental classes every time an error was detected in the target form. The learner was never encouraged to repeat the form. Since this was a two-way immersion program, all classes (experimental and control) contained L1 English speakers and L1 Spanish speakers in approximately equal numbers. Finally, the chapter ended with operationalization of terms for FonF, feedback, partial immersion, two-way immersion, and the concepts of analysis and control. An outline of the whole study was presented at the end.

NOTES TO CHAPTER 1

1. Although Bialystok (1991a, 1991b, 1994a) discusses analysis and control of linguistic knowledge, it is difficult to know whether under control she assumes control of *syntactically accurate* versus non-accurate representations which are based on analyzed linguistic knowledge. The closest she comes to discussing the issue is in the following statement: "The process of control depends heavily on the skill of directing attention, but such attention would be vacuous without an adequate knowledge-base..." (Bialystok, 1991b:120). For the purpose of this discussion, it will be assumed that control refers to attention over the retrieval of *accurate* linguistic knowledge of a form.

2. Krashen (1983) states that in order to acquire language, learners need to "notice a difference between their current level of competence *i*, and the new structure or form presented by either

input or the creative construction system" (Krashen, 1983:139).

3. This class assignment was done due to the fact that the fourth grade teacher was interested in conforming to the researcher's and to the county's request for cooperation, because the teacher herself was eager to improve her students' grammatical accuracy. Additionally, the fifth grade had not yet been assigned a teacher for the following school year at the time this study was in the planning stage. Therefore, it was easier to assign the fifth grade to the comparison groups, where the new teacher would have no responsibility other than to allow for testing in her classroom.

CHAPTER 2

IMMERSION PROGRAMS IN THE U.S. AND CANADA

2.0 *INTRODUCTION*

Since this study concentrated on the implementation of FonF instruction in an immersion program, it is useful to provide a short background about the development of immersion programs in the U.S. and Canada. Partial immersion is a type of bilingual education in which students are educated through the medium of both their first language (e.g., English) and a second language, (e.g., Spanish or French). Both first and second languages are used to teach regular academic subjects such as science, mathematics, social studies or physical education; however, the same subject is never taught in both languages at the same time (Genesee, 1987).

The first North American immersion program was created in the Canadian public school system in 1965 in the suburban community of St. Lambert, near Montreal. It was the result of two years of discussion by parent groups, educational authorities and researchers who wanted to improve the methods of French second language instruction for English-speaking children in the schools of Quebec. Their main motivation was a desire to have their children participate actively in Quebec's economic life. This group consulted with Wallace E. Lambert of the Psychology Department at McGill University, who conducted research on psychological aspects of bilingualism, and with Wilder Penfield of the Montreal Neurological Institute, who conducted research on brain mechanisms underlying language functions. The influence of these researchers was realized in the creation of an Early Total Immersion Program in French (Genesee, 1983).

Thus, the rationale behind the first immersion program was based on neuropsychological, psycholinguistic and social psychological research and theories (Genesee, 1983). The neuropsychological theory rested on Penfield's belief that the human brain possesses more neurophysiological plasticity and, therefore, is more capable of acquiring languages before puberty[1]. From the linguistic perspective, Chomsky argued that children have special innate language learning capacities which account for their facility at language acquisition and that children display the necessary cognitive abilities for language acquisition. Finally, the social psychological argument rested on the assumption that young children are generally better second language learners because they have fewer affective barriers to interfere with learning than older learners. In addition, it was thought that young children would show a more positive attitude toward the second language than older children, an important consideration in achieving cross-cultural communication between English and French speakers in Quebec (Genesee, 1983). From those converging perspectives, the immersion program was designed to create similar conditions which occur during a child's first language learning; that is, the emphasis was on engaging the learner in meaningful and interesting communication which would increase the child's desire to speak the second language. As a result, language learning in immersion programs became incidental to the learning about science, mathematics or other subject matters (Genesee, 1984).

Since then, immersion programs have varied according to the level of introduction of the second language and to the choice of second language of instruction; the programs in Canada are differentiated by Early, Delayed or Late French Immersion. In Early Immersion, subjects are taught in the second language from Kindergarten, and learners do not have to speak in French until grade one, at which time teachers encourage learners to speak in the second language. Instruction in English is introduced in grades two, three or grade four. A variation of this program is the Early Partial Immersion, in which only 50% of the academic subjects are taught in French. In the Delayed Immersion program, French is the medium of instruction in grades four and five. In Late Immersion programs, French as the medium of instruction is postponed until the 7th or 8th grades; Late Immersion programs may be preceded by French core classes, where the second language is taught as an academic subject (Genesee, 1983).

While Canadian immersion programs concentrated on French as the second language of instruction [except for double immersion where French and Hebrew are taught (Genesee, 1983, 1987)], U.S. immersion programs started with Spanish as the second language of instruction (Cohen, 1974a). The forerunner of immersion programs in the U.S. was the Dade County, Florida program, which experimented with bilingual education in Spanish and English for both Cuban and American children in 1963. Due to federal legislation, however, this program was forced to change from a two-way enrichment program, with half of the instruction in Spanish, to a transitional bilingual program, where students were mainstreamed into all English-classes as soon as possible (Craig, 1993). The first total immersion program in the U.S. started in Culver City, California, in 1971. This was a two-way Spanish-English bilingual program in which the students were from both populations, English and Spanish native speakers. Instruction emulated the Canadian Total Immersion program in that children were exposed to Spanish only in the early grades starting in Kindergarten (Cohen, 1974a).

Since then, immersion has been implemented in at least 124 schools in the U.S. At present, immersion programs in the U.S., in addition to Spanish, use French, Japanese, Korean, Navajo and other languages as the medium of instruction (Christian, 1996; Thomas et al., 1993). A popular form of immersion is the Partial Immersion program in which children receive 50% instruction in the second language and 50% in their first language (Center for Applied Linguistics [CAL] in Thomas, Collier, and Abbott, 1993). Additionally, there are other programs which follow a 90/10 or an 80/20 model as well (Christian, 1996). A variation of the immersion programs in Canada, developed in the U.S., is the two-way immersion program, also known as "developmental bilingual education". Two-way programs use both English and a second language for teaching the content curriculum to English-speaking students and to language-minority students. Two-way immersion programs have the advantage that they offer a second language education to the English-speaking students, while at the same time providing the language-minority students with opportunities to develop literacy skills and academic instruction in their native language (Craig, 1993). Furthermore, two-way immersion programs provide the English-speaking student with peer models in the second language as compared to the Canadian immersion, where the teacher is the only source for modeling to the students (Genesee, 1987).

The present study concentrated on a two-way Early Partial immersion program, where instruction is half a day in English and half a day in Spanish (50%). This immersion program is part of a large partial immersion program in the Washington, D.C., metropolitan area which started as the result of efforts on the part of ESOL/HILT (English as a Second Language for Speakers of Other Languages/High Intensity Language Teaching) staff who were seeking alternative ways for educating language-minority students. Through their association with the Center for Applied Linguistics, they decided to combine foreign language instruction for English-speaking students with improved methods of educating Spanish-speaking students in content areas (Craig, 1993). The present experimental study investigated the effects of a FonF approach implemented in the fourth grade elementary school two-way partial immersion program where there is a half Spanish-speaking and half English-speaking L1 population.

2.1 *GOALS OF TWO-WAY IMMERSION PROGRAMS*

Two-way immersion programs share some of the goals with other immersion programs. These are :

- help the students develop functional competence in the second language
- develop the first language
- promote academic achievement and success in two languages
- help the learners develop an appreciation for the second language and culture (Genesee, 1987)

Additionally, goals specific to two-way immersion programs are additive bilingualism and high levels of literacy in two languages. Additive bilingualism or the acquisition of an additional language at no cost to the learner's first language, stands in sharp contrast to subtractive bilingualism, in which, through societal or academic policies, the first language is replaced by the nationally prestigious language (Lambert, 1980; Thomas, et al. 1993). The second goal, Spanish literacy, is an important issue not only for the English speakers, but especially for the native Spanish-speaking students in a two-way immersion program. Many of these students' literacy skills vary according to different factors such as whether the learner is a newly arrived immigrant as compared to a second or third generation bilingual. Literacy skills could vary also according to the type of Spanish spoken at home, whether it is rural (often dialectal) or standard. Literacy needs for newly-arrived immigrant children usually consist of language maintenance, continued development of language competencies and often, acquisition of the prestige variety of Spanish. Finally, while the needs of second or third generation bilinguals could be all of the above, it is important to enable transfer of literacy skills developed in English to Spanish (if the child did not start the program in Kindergarten) (Valdés, 1995).

2.2 *ACADEMIC PROFICIENCY*

Testing during the primary grades of early total immersion prior to receiving English language arts instruction indicates that immersion students score lower than control students on tests which are based on literacy skills in English (e.g. reading, spelling). However, this difference begins to diminish following the introduction of English in the curriculum after grades two or three (Christian, 1996; Genesee, 1987; Thomas et al., 1993). Evidence from studies on total and partial immersion programs in the U.S. and Canada indicates that learners in grade five perform equally well or better on math, reading and other skills in their L1 English than their peers who have had instruction in only one language (Barfield and Rhodes, 1994; Christian, 1996; Cohen, 1974a; Craig, 1993; Genesee, 1983, 1987; Thomas, et al., 1993).

2.3 *SECOND LANGUAGE PROFICIENCY*

Most of the second language acquisition research in immersion programs has been carried out in Canada on the acquisition of French (Allen et al., 1990; Day and Shapson, 1991; Harley, 1998; Swain, 1985, 1991, 1998; Swain and Harley, 1984; Swain and Lapkin, 1989). There is some literature on the acquisition of Spanish in immersion programs in the U.S. (Boyd, 1975; Cohen, 1974a, 1974b; Plann, 1979). All the above studies concentrated on the acquisition of a second language by English speakers. The literature on the acquisition of Spanish by Spanish speakers in the U.S. discusses for the most part the sociolinguistic issues of recognizing or teaching dialectal versus standard Spanish and provides the teacher with ideas for curriculum implementation for Spanish-speaking students in *Spanish for native speakers of Spanish* classes at the university or high school level (Merino, Trueba, and Samaniego, 1993; Padilla, Fairchild, and Valadez, 1990; Valdés, 1995; Valdés, Lozano, and García-Moya, 1981). When these studies address any grammatical issue, it is usually in the form of a qualitative description of how to implement the teaching of grammar such as the standard verb morphology versus dialectal (*fuiste vs. fuistes*) (Hidalgo, 1993), the subjunctive (De

Lozano, 1981) or how to correct orthographic errors (Staczek and Aid, 1981). To my knowledge, there are no studies that have investigated the effects of targeted instruction on the acquisition of agreement features by native speakers of Spanish; this may be because there might not be a great need for this type of instruction, or on the other hand, if there is a need, it might not have been identified. The main consideration in the present study for investigating the effects of FonF on subject-verb and noun-adjective agreement features was the apparent need for English speakers in immersion programs to improve in the acquisition of these forms (Boyd, 1976; Christian, 1996; Cohen, 1974; Plann, 1979). However, the native speakers of Spanish are an integral part of the two-way immersion classroom, and, as such, they were present when treatment in these features was provided in the classroom. Furthermore, at no time during the testing phase were native and non-native students treated differently, or, for that matter, tested separately. As a result the researcher obtained valuable data from native speakers which was analyzed and considered baseline data for this study.

Nonetheless, in view of the predominance of second language acquisition studies of English speakers in immersion programs, the following discussion is devoted to immersion learners in the U.S. and Canada, whose first language is English. Studies which have compared French immersion students with core French students (in regular foreign language instruction) have indicated that the immersion group was superior to the latter (across the board for all the types of immersion programs). It was more interesting, therefore, to compare the learners to French native speakers (Genesee, 1983, 1987).

2.3.1 *Listening-comprehension*

Immersion students attain the same level as the native second language speaking children in listening-comprehension skills. A longitudinal evaluation of early total immersion students in Montreal indicates that students in grades four and five scored as well as comparable francophone students on the Comprehension subtest of the *Test de Lecture California* (California Reading Test) (Genesee, 1987). Furthermore, their comprehension ability during an oral interview with a native French speaker is considered to be as good as that of francophone students when interviewed under the same conditions (Genesee, 1978a, in Genesee, 1987). It is important to caution that the immersion students' comprehension skills refer to school-related material. It is not entirely clear how they would perform in a natural French environment. In language use surveys conducted in Montreal, immersion students showed concern that it was difficult for them to understand French Canadians because the latter spoke too fast (Genesee, 1987).

Students in the Culver City immersion program were given the Inter-American *Prueba de Lectura* (Reading test) (level 1) as a test of Spanish reading comprehension (Cohen, 1974a). Results were compared to students' reading ability on the same test in Guayaquil, Ecuador. There was no significant difference between the groups except for a slight advantage by the Ecuadorian group on the reading vocabulary sub-test. These results would suggest that Anglo children taught in Spanish in an English-speaking community can achieve Spanish reading competence similar to that of native Spanish speakers taught in a Spanish-speaking environment by the end of the first grade. The researcher adds a note of caution, though; although the children in Ecuador were from a high quality school and had had similar amount of reading instruction as the Culver city children, they were probably not as familiar with the format of the test as were the Culver City children (Cohen, 1974a).

In a review of a partial immersion program in Virginia (Barfield and Rhodes, 1994), in which fifth grade students' oral language ability in Spanish was assessed with the CAL Oral Proficiency Exam (COPE), results indicate that students, in general, scored higher on comprehension than on vocabulary and grammar. In the same review (Barfield and Rhodes, 1994), third grade students were given the Language Assessment Scales-Oral (LAS-O) to measure English and Spanish language development. The LAS-O measures vocabulary, listening comprehension skills and story retelling. Although there were significant differences between the Spanish speakers' results and the English speakers' on story-retelling and vocabulary in Spanish, there was no significant difference between the two groups in the results of the Listening Comprehension subtest (Barfield and Rhodes, 1994). While these tests are global measures of language proficiency, the present study used tests specifically designed to measure the learner's accuracy in producing and comprehending the study's target features of subject-verb agreement and noun-adjective agreement as they occur in the context of the fourth grade science class. Achieving a relative degree of accuracy on subject-verb agreement (S-V) in Spanish is important, because Spanish, being a pro-drop language, does not require the subject to be present in every sentence; the subject is often inferred from the verb morphology. Thus, inaccurate verb morphology or subject-verb agreement may lead to lack of comprehension and/or to misunderstanding on the part of the listener. While accurate use of adjectival agreement (N-A) is not crucial for comprehensibility in Spanish, because gender/number is usually interpreted from the noun in the sentence, adjectival agreement is, nonetheless, an important feature which distinguishes

Spanish from English. Thus, both features, S-V and N-A agreement, are important indicators of Spanish proficiency. The tests designed for this study, therefore, while communicative in nature, are targeted to measure proficiency in S-V and N-A agreement exclusively.

2.3.2 *Communication and discourse competence*

Research on French immersion indicates that, in general, students perform as well as native speakers in communicative and discourse competence (Genesee, 1983, 1987; Harley, 1993). A study which compared French language proficiency of grade six early French immersion students from Ottawa with grade six native speakers from a regular francophone school in Montreal found that there was no difference between the immersion students' discourse competence and that of the francophone speakers (Harley et al., 1990). Discourse tasks were measured by telling a story from a silent film, by participating in role-play where the ability for argumentation and persuasion was measured, and from a written text where one sentence was omitted and the student was required to complete the text by choosing the appropriate sentence from three alternative choices (Harley et al., 1990). The above study's only drawback might be the disparity in the number of subjects in the two experimental groups: 175 in the immersion program vs. only 23 native speakers.

The oral communication skills of French immersion students have been evaluated and compared to francophone students by native French speaking interviewers using an open-ended format. Immersion students were rated between 3.5 and 5.0 on a 5-point scale, with 5 being native-like (Genesee, 1983). In a more objective study, communication skills by total immersion students in grades five and six were evaluated (Genesee, 1983, 1987). As part of the evaluation, students were asked to retell a story they had just seen in a silent film to someone who had not seen it. The evaluation was based on the student's ability for organization of the story and on the amount of information transmitted. It was apparent that immersion students performed as well as the native speakers of the same age on this test. While research on French immersion has demonstrated that learners have achieved native-like discourse abilities, to my knowledge no such studies have been conducted on Spanish immersion. It is, therefore, difficult at this time to apply the same generalization to learners in Spanish immersion programs.

2.3.3 *Grammatical and sociolinguistic competence*

Although immersion students compare favorably with native-speaking peers and outperform core language students on the measures discussed thus far, research indicates that they generally fall behind their native-speaking peers in grammatical accuracy in production (written and spoken ability) as well as on application of rules on discrete point grammar tests (Genesee, 1983, 1987; Harley et al., 1990; Swain, 1985). Furthermore, students apparently lack functional and sociolinguistic skills, precisely when these depend on grammatical knowledge, such as the inaccurate use of the French conditional in polite situations for example (Harley and Swain, 1984; Swain, 1985). The incorrect use of the conditional in situations which require different degree of formality is, apparently, directly related to the students' lack of knowledge of verb morphology in

French (Swain, 1985, 1991). Studies of immersion programs have concentrated on describing/diagnosing the problem of lack of grammatical accuracy (Allen et al., 1990; Barfield and Rhodes, 1994; Cohen, 1974a, 1974b; Harley, 1993; Harley and Swain, 1984; Plann, 1979; Swain, 1985) or on reporting on experiments designed to find a solution to the problem (Day and Shapson, 1991; Harley, 1989, 1998; Kowal and Swain, 1994; Lyster, 1994; Swain, 1985, 1998; Swain and Lapkin, 1989, 1995). A study of second language production of immersion children in the Culver City project (Cohen, 1974a) revealed that students often used the morphological rules governing agreement in Spanish inaccurately (subject-verb, article-noun and adjective-noun). Apparently, the children were aware of gender and number but had not sorted out the forms and, therefore, switched from correct to incorrect forms. The researcher concluded that overgeneralization and transfer of English linguistic knowledge about nouns, adjectives and articles, were the prevalent processes at play (Cohen, 1974a). An important diagnostic study which compared Canadian English-speaking children in the French immersion program in grades one, four, six and ten to native French speakers in grades one, six and ten (Harley and Swain 1984) revealed that, a) performance may outdistance L2 competence in early interlanguage (use of the passé composé without segmentation); b) the learners continued using structures from L1 (progressives in place of the passé composé, English word order, and prepositional phrases instead of motion verbs); and c) immersion learners showed inappropriate sociolinguistic knowledge of the conditional, using over-formal structures in non-formal contexts and vice-versa. The researchers concluded that there is a need to consider both form and function in assessing language development; that the input that students receive is not always adequate to promote target-like proficiency, especially of marked forms; and that students extract meaning from the input without paying attention to the form. The researchers recommended more focused L2 input which provides the learners with opportunities to observe the formal and semantic contrasts involved in the target system, and more opportunity for the students to participate in activities that require production of the forms in meaningful contexts (Harley and Swain, 1984). This research is important because of its detailed report on the lack of grammatical accuracy displayed by immersion students. Researchers in the COLT observation study (Allen et al., 1990; Swain, 1991) of nine grade three and ten grade six early, total immersion classes reported that French immersion teachers paid little planned attention to vocabulary instruction other than for interpretation of meaning. Additionally, it appears that the classroom environment was functionally restricted. There were few opportunities for students to produce the sociolinguistically motivated use of *tu* and *vous* (scarce use of *vous* as a politeness marker led to its underuse) and to produce the grammatically motivated use of plural *vous*. The researchers concluded that provision of relevant grammatical and sociolinguistic rules in context, together with opportunities for appropriate use, would benefit the learner (Allen et al., 1990; Swain, 1991). The research described above is part of a large and important project undertaken by Harley and her colleagues in reporting on and assessing foreign language instruction in Canada (Harley, Allen, Cummins and Swain, 1990).

As evidenced from the research mentioned above, immersion students lack functional and sociolinguistic skills that are related to grammatical knowledge. This was also observed in an important study by Swain (1985), which led her to postulate the comprehensible output hypothesis (see section 2.4.2 below). Three traits were tested on grade six immersion students and compared to grade six native speakers of French: grammatical competence (morphology and syntax [verbs and prepositions]), discourse competence (coherence and cohesiveness) and sociolinguistic competence (appropriateness of responses). The results from the grammar tests indicated that immersion students have not acquired native-like abilities in the grammatical domain, especially where verb morphology is concerned, and that native speakers perform better than immersion students on sociolinguistic tasks; results from discourse tests, on the other hand, showed an ability to produce and recognize coherent and cohesive text on a par with native speakers. The sociolinguistic trait was defined as the "ability to produce and recognize socially appropriate language within a given sociocultural context" (Swain, 1985:242). In the oral production test, the children were asked to respond with the appropriate language to different situations depicted on twelve slides. In the multiple-choice test, students were asked to recognize the appropriateness of an utterance according to a specific sociocultural situation. The items included language in situations which required various degrees of formality. Finally, in the written production task, the children were required to write two different directives. The first was addressed to an unfamiliar adult and the second to a familiar adult (mother, teacher). These were scored for the use of conditionals, modals, inverted and indirect questions and use of idiomatic polite expressions.

Results indicated that where immersion students could use formulaic politeness terms, they seemed to perform as well as native speakers. However, in the categories where grammatical knowledge played a role, immersion students performed below the native speaker's level. Especially noticeable was the immersion students' performance on sociolinguistic tasks which demanded grammatical knowledge of the conditional, where students performed poorly in oral and written tasks. This was directly related to the learners' low performance on verb morphology in the grammar tests (Swain, 1985). As a result, Swain suggested that students in the immersion program need to produce more output. This output, in turn, should not only get the message across, but should convey meaning in ways that are accurate syntactically as well as semantically. In sum, the diagnostic/descriptive studies mentioned above suggest that in order to help students function at native level, immersion programs need to incorporate some grammar instruction into their curriculum.

Results from experimental studies explicitly designed to improve grammatical accuracy are mixed. Although most of these studies indicate that integrating functional-analytic grammar teaching (see Chapter Three) into the experiential curriculum led to some improvement in grammatical accuracy, results either were not always long-lasting or did not affect all levels of language proficiency. In a large experimental study involving 319 grade six Early Total immersion students in twelve Canadian schools (Harley, 1989), teachers in the experimental groups were provided with special materials which focused on the teaching of a grammatical form in French (passé composé) for eight weeks. Results indicated that students in the treatment groups improved in their grammatical knowledge of the target form on the immediate but not on the delayed posttest, which suggests that there was no long-term effect from instruction. Furthermore, no gains were obtained from the written mode in this study. It is important to note that the researcher attributes these results partly to the lack of feedback by the teachers during the instructional phase of the experiment (Harley, 1989).

In another experiment, in which the researchers investigated whether the learners' use of the conditional could be improved through specially designed materials in six grade seven immersion classes, students were led through a series of written and oral activities (Day and Shapson, 1991). Results indicated that learners made significant gains in the use of the French conditional in the written mode, but the researchers obtained no conclusive results from the speaking mode. The researchers attributed these findings to lack of automatization of the rule and to group variation during the oral open-ended activities where no editing took place to correct their errors. Additionally, it was apparent that the learners concentrated exclusively on the meaning of an utterance when speaking (Day and Shapson, 1991). It appears that although beneficial, instruction was not focused enough on the target form to obtain the desired results in oral proficiency. This study is useful because it provides a detailed description of the activities and games to facilitate the use of the conditional as well as of the instruments for testing.

The effect of functional-analytic teaching in French immersion showed that instruction improved the students' sociolinguistic competence in oral and written production as well as in comprehension tests (Lyster, 1994). In this experimental study, teachers in five grade eight French immersion classes were provided with materials to instruct the learners in the use of *tu* and *vous* for five weeks. Results indicated that learners in the experimental classes performed better than the comparison classes in all three tests. The drawback, however, is that it is difficult to ascertain which variable is responsible for the effect of instruction. The researchers used a variety of techniques, which included explicit instruction, peer correction, structural exercises, and writing activities; some teachers even provided feedback, which could be considered a type of FonF instruction.

More research is needed in the immersion context when only one type of language instruction is used, preferably instruction which does not interfere with the immersion content curriculum. The FonF instruction investigated in this study meets this criterion. In contrast, analytic instruction, although helpful, does not appear to be entirely adequate for the immersion program. Although the experimental studies discussed above show attempts to incorporate grammatical or sociolinguistic forms into the curriculum, what appears to be missing is specific FonF instruction, such as corrective feedback, for example, in which form-meaning connections are encouraged at all times. Introducing specific analytic activities designed to emphasize the target form, departs from the immersion content curriculum. Analytic activities, although communicative in nature, seem to be more suited for the regular foreign language class, where the teacher does not have to meet certain content-based objectives but must only teach the target language to the students. On the other hand, FonF instruction is probably more suitable for immersion classes and ESL content classes, especially FonF instruction such as implicit feedback, which should not interrupt the flow of the content class or the curriculum outlined for that class. Moreover, whereas the experimental research mentioned above concentrates on French immersion programs, there is much need for research which specifically addresses the lack of grammatical accuracy displayed by students in Spanish immersion programs.

One way to implement FonF instruction is through the use of special tasks geared to elicit or process the target form (Harley, 1998). Harley studied the acquisition of gender in articles and nouns by second grade immersion students. The instructional package contained daily 20 minute activities used by the teachers over a five week period. The tasks were designed especially to require close attention to gender distinctions. These tasks varied from games to songs and rhymes. Most of the activities required the learner to choose between the words masculine (M) or feminine (F) by attaching labels, choosing the right column, naming masculine and feminine words from stories or bingo cards, matching nouns with endings, using different actions for masculine and feminine nouns in games. In a sense these resemble consciousness-raising, metalinguistic tasks of input-processing activities (VanPatten and Cadierno, 1993).

Four tests were administered. The aural tests consisted of choosing the right article for feminine or masculine nouns. The oral production tests consisted of producing the right definite or indefinite article according to a picture and questions by the researcher. The latter two tests, however, were not administered to all the subjects but only to a random sample of eight subjects in each class. Results indicated that mean scores improved from pretest to immediate posttest and to delayed posttest in two of the tests, stabilized in one of the delayed posttests and no improvement was obtained from one of the oral tests. This study is important because it shows that FonF can be implemented in early immersion grades with beneficial results. However, many problems remain. The first is that the nature of the tasks, by the researcher's own admission, was not always compatible with the content curriculum. This is a major problem when implementing any type of FonF instruction in an immersion program. From my own experience, teachers in these programs are very reluctant to spend time on instruction which will take them away from the programmed content curriculum, because they simply do not think they have time for that. Second, even though the FonF tasks appear to be age appropriate, they are based mostly on recognition of feminine and masculine forms, a form of metalinguistic analysis, not congruent at all with the very communicative nature of content-based classrooms. Nevertheless, perhaps explicit instruction of this kind is necessary precisely to counterbalance the very meaning oriented instruction that takes place in the immersion classrooms. Third, although the tasks were of an input-processing nature, apparently feedback and opportunities for output were also given. While this combination of FonF activities is most likely pedagogically sound in an immersion setting, it is not experimentally sound, since it is not really known which of the last three variables, input enhancement, feedback or oral output led to the obtained results. Fourth, Harley resorted to counting only the feminine nouns for analysis in the oral tests because of the inflated results she would have obtained from counting the masculine forms, which learners usually get right. It is difficult to say whether such caution might have affected the results. Finally, it appears that the tests used were all at the level of word or sentence structure without the use of discourse, which would have been more appropriate for a content-based classroom. In fact, there is no indication that learners actually produced the forms during spontaneous oral or written speech production. Research is needed which incorporates FonF instruction of problematic features such as gender in the immersion program without taking time away from the subject curriculum and which will test the learner's acquisition of this feature under natural conditions in the immersion classroom. The present study aimed at doing just that.

2.4 *THEORETICAL ASSUMPTIONS UNDERLYING IMMERSION LEARNING*

2.4.1 *Comprehensible input hypothesis*

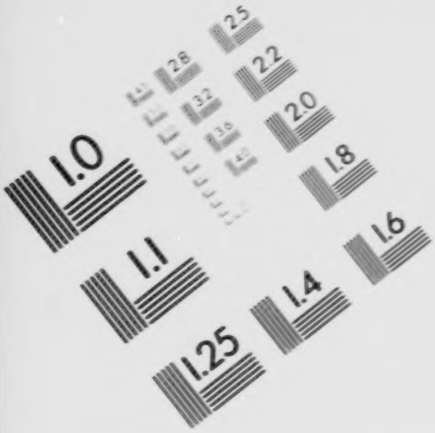
The immersion program is based on the theoretical assumption that language is acquired through comprehensible input in the classroom (Swain, 1985). This is in accordance with Krashen's (1982, 1985) input hypothesis, which states that to be exposed to comprehensible input which exceeds somewhat the learner's current knowledge of the language (i+1) and is offered in a low affective filter environment is sufficient for acquisition to take place. Most SLA theorists endorse the input hypothesis in some form. However, what they all argue is that comprehensible input is not sufficient for language acquisition to take place (Schachter, 1984, 1986; Sharwood Smith, 1985; Swain, 1985; White 1987). In addition to the input hypothesis, it is important to determine how the input interacts with the learner's grammar in the acquisition process (White, 1987). Comprehensible input, although widely accessible to the immersion program student, does not seem to be the *only* necessary factor for acquisition, or else, after six or seven years in this program, the learner's language would exhibit native speaker's qualities, which, unfortunately, is not the case (Cohen, 1974a; Harley 1989, 1993; Plann, 1979; Swain, 1985; Swain and Lapkin, 1989).

2.4.2 *Comprehensible output hypothesis*

In response to the lack of grammatical and sociolinguistic competence exhibited by immersion students, Swain (1985) proposed the comprehensible output hypothesis, which states that in conjunction with the provision of input, the learner needs to be pushed towards the delivery of a message that is not only conveyed, but that is conveyed accurately. It is possible that immersion students stabilize (Selinker and Lamendella, 1979), in other words, reach a plateau in their output, because they do not need to be more accurate in order to be understood by their peers or the teacher

(Genesee, 1987; Snow et al., 198; Swain, 1985). Swain hypothesizes that "pushed" output might encourage the learners to analyze the structure of the language, to test their hypotheses and to move from semantic to syntactic processing (Swain, 1985).

So far, little research exists to substantiate this hypothesis (Kowal and Swain, 1994; Pica, 1992, 1994; Swain, 1998). Swain hypothesizes that one way to use output for syntactic processing is by engaging the learner in metatalk (Swain, 1998). Swain reports on two experiments in the French immersion program which used output to promote syntactic acquisition of a form. In the first (Kowal and Swain, 1994), the teacher designed a dictogloss which consists of a French text read to the students. The learners, grouped in dyads, listened to the text and took notes. They then reconstructed the text through dialogue and discussion. The transcripts from these discussions showed that students talk about language and self-correct during these discussions; 30% of the discussion was on lexical meaning and 40% was on forms. The dictogloss clearly had created situations for metatalk; however, this study was really only at the descriptive level. In order to find out whether these discussions promoted second language learning, Swain reported on a second experiment. Four dictoglosses were used to test the acquisition of number in nouns and adjectives, gender in adjectives and formation and use of compound and imperfect past verbs. Prior to hearing a dictogloss, students were provided with a short explanation of the grammatical rule for the form in focus as well as explanation of new vocabulary. The dictogloss was given during four sessions, two for modeling and practice, one for only practice and the students were tape-recorded in the last session. During the metalinguistic modeling session, a reconstructed dictogloss from a pair of students was matched against the original text and discussed metalinguistically in front of the whole class. For the experimental group, the researcher and the teacher participated in this modeling by *pointing out the rule that was missing* in a "hole" in the learner's interlanguage, such as "don't forget the s in street *because it's plural.*" The comparison group received the same metalinguistic modeling but without the explanation of the rule. e.g., "Don't forget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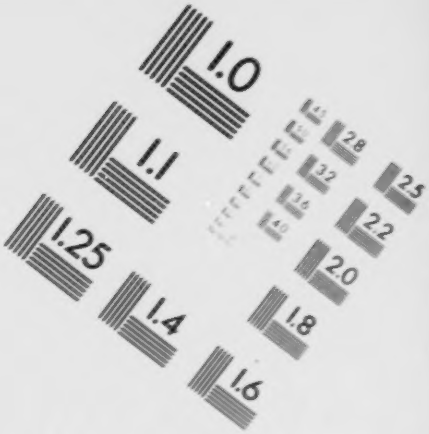
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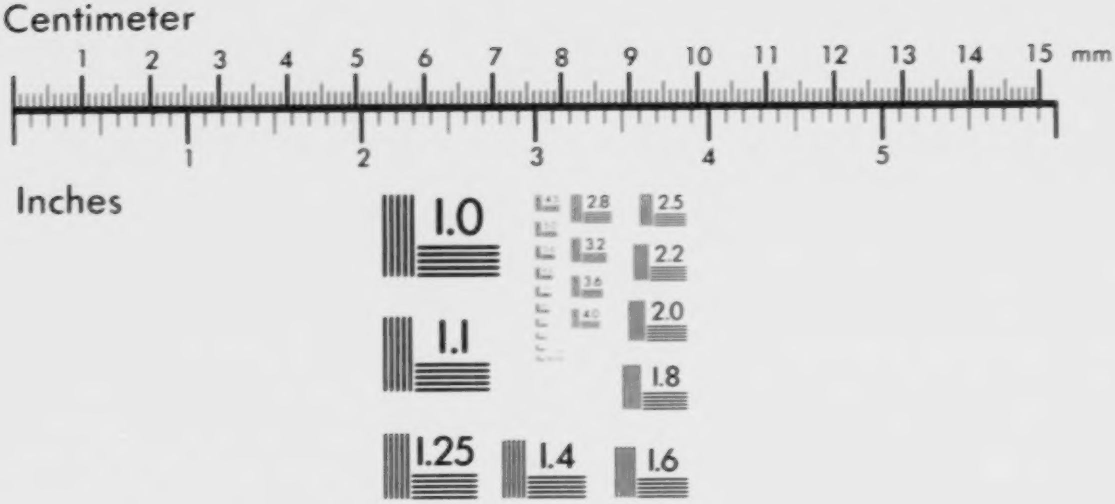
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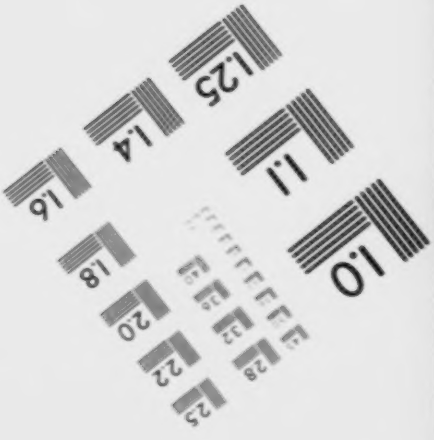
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the s on street" (Swain, 1998:35, 36).

The next two sessions followed the same format as the first, with students reconstructing a dictogloss and receiving metalinguistic modeling according to the groups they were in (experimental or comparison). The target features were adjectival gender agreement in the first and imperfect and compound verb formation in the second of these two sessions. Students received an explanation on the formation of feminine adjectives out of masculine ones for the first and a short lesson on the passé composé and imparfait for the second. Testing was of a discrete point nature, except for an open-ended section. The results indicated first that metatalk does engage the learner's processes on the form. Furthermore, the experimental group which received metalinguistic modeling plus an explanation of the rule produced many more instances of discussion which centered on their own language use. Second, learners who had reached the correct solution to the problem showed a much higher degree of accuracy on the form they had worked on than learners who had not reached a correct solution to the reconstruction problem. These results indicated that learners used the knowledge they had built on during their discussions on the dictogloss. In other words, Swain assumes that reflection on language led directly to language learning. This study shows that immersion learners could benefit from reflection on linguistic rules, but it is not clear whether such knowledge could be incorporated into everyday spontaneous speech in the immersion classroom where use of inaccurate forms has stabilized for a long time and where teachers generally continue encouraging communication above everything else.

The push from semantic to syntactic processing is certainly a necessary step to encourage language learning in the immersion program. Ideally, one would want to achieve this with the least amount of disruption to the regular curriculum. The present study's objective was to promote such a push within a natural setting in the immersion classroom. Swain's discrete-point tests might not be compatible with the very communicative nature of immersion classes. More appropriate tests would be those congruent with the content instruction in the classroom and which would elicit spontaneous speech from the student while at the same time target the grammatical features being investigated. All the tests in the present study meet those characteristics.

2.5 *SUMMARY*

French immersion programs were created in Canada in order to help English-speaking children integrate linguistically and culturally into French Canadian culture. The psycholinguistic rationale was that children learn a second language better at young age. These programs can be classified as Early, Delayed or Late. In the U.S., immersion programs provide instruction in different second languages such as French, Japanese, Korean and Spanish. The most generalized instruction is in Spanish, and the most popular form of immersion in the U.S. is that of partial immersion (50%), as compared to the Canadian model, which is mostly one of total (100%) immersion in the first years. The present study investigated the acquisition of grammatical forms in a two-way partial immersion program. The goals of two-way immersion programs are similar to regular immersion programs in that they aim to help students develop functional competency in two languages as well as to develop the learner's overall academic proficiency. Additionally, two-way immersion adds literacy and additive bilingualism to its goals.

Immersion studies in second language acquisition in the U.S. and Canada concentrate on L1 English speakers. Research on listening-comprehension ability as well as on discourse and communicative ability indicates that immersion learners compare favorably with native speakers in their ability to understand and interpret the second language, both for French (Canada) and Spanish (U.S.). Research on grammatical accuracy, on the other hand, indicates that immersion learners have not reached native speaker's levels for grammatical accuracy. This, in turn, seems to have an effect on the learner's sociolinguistic ability as well. Studies to address this problem have been either of diagnostic or experimental nature. Experimental studies have included the incorporation of special functional-analytic instruction or of specific FonF instruction. The problem with most of these studies is that they often mix several types of instruction so that, from the experimental point of view, it is difficult to determine what, if anything, caused the effect. The other problem that many of these studies present is that the instructional materials are not always congruent with the content instruction in the immersion classroom. The present study tried to eliminate this difficulty by implementing only one type of FonF instruction, and one which would not interrupt the flow of the content instruction in any way.

Finally, the theoretical assumption that comprehensible input is sufficient for second language acquisition to take place in the immersion program has been challenged by Swain (1985) in her comprehensible output hypothesis and via a discussion of some of the studies which promote the production of metalinguistic output among immersion learners in order to push the learner from semantic to syntactic processing. The push to output is also the present study's aim, but with the implementation of a more subtle, implicit and incidental type of instruction than is recommended by Swain.

NOTES TO CHAPTER 2

1. This belief has since been challenged (Ervin-Tripp, 1974; Harley, 1986; Krashen, Long, and Scarcella, 1979; Swain and Lapkin, 1989). In fact, evidence has been presented in favor of the critical period hypothesis and against it (see Long, 1990, and Singleton, 1989, for a review). So far the field has not come to definitive conclusions on the matter of critical periods for second language acquisition for syntax and morphology (Long, 1990; Singleton, 1989).

CHAPTER 3

INSTRUCTED SLA

3.0 *INTRODUCTION*

An important issue in the study of second language acquisition is determining the effect of instruction on the restructuring process of the learner's developing system (Doughty, 1991; Ellis, 1990; Larsen-Freeman, 1991; Lightbown, 1985, 1992; Lightbown, Spada, and Wallace, 1980; Long, 1983b, 1988; McLaughlin, 1987, 1990; Pica, 1983; Sharwood Smith, 1993; Spada and Lightbown, 1993; Terrel, 1991). One of the current instructional goals is to raise the learner's awareness of the grammatical form in the input (Ellis, 1995; Rutherford and Sharwood Smith, 1985; Schmidt, 1990; Sharwood Smith, 1991, 1993; VanPatten, in press; VanPatten and Cadierno, 1993) and in the learner's own output (Pica 1992, 1994; Swain, 1985). As noted in Chapter 1, the learner's awareness of a form may be raised through focus-on-form instruction (Doughty and Varela, 1998; Doughty and Williams, 1998; Ellis, 1993a; Lightbown, 1992; Long, 1991; VanPatten, in press; White, 1987), which might be implemented in different ways, such as by explicit instruction sometimes accompanied by input processing (VanPatten and Cadierno 1993), making the form salient to the learner with input enhancement (Doughty, 1991; Sharwood Smith, 1993; White, 1998), having the learner produce more output (Swain 1985, 1998), or providing the learner with negative feedback (Doughty and Varela, 1998; Lightbown, 1992). Specifically, Long (1991) distinguishes between focus on forms and focus-on-form. The focus on forms approach would be similar to a functional-analytic approach (see 3.1 below) for which the syllabus is based on the teaching of linguistic items. Research has demonstrated, however, that it is not sufficient to incorporate functional-analytic instruction into the experiential approach (Day and Shapson, 1991; Harley, 1989). It is hypothesized that what is needed is a focus-on-form approach which aims at drawing the learner's attention to the linguistic form *precisely* *at the time the learner is trying to produce or to interpret the meaning of an utterance* (Lightbown, 1992, Long, 1991). A FonF approach, then, would be helpful to the immersion learner in the process of making form-meaning connections. This process, in turn, would help the immersion learner not only to move from semantic to syntactic processing (Kowal and Swain, 1994; Swain, 1985), but, also, *to integrate* the two as semantic and syntactic processing. This, in turn, would constitute the integration of language and content in the immersion curriculum.

Additionally, in order to explain some of the effects of FonF instruction, it is important to take into account learner cognitive processes during second language acquisition. If we consider language in terms of mental representations, then language proficiency can be defined as the interaction between analyzed linguistic knowledge and control of that linguistic knowledge (Bialystok, 1988, 1991a, 1994a). One of the FonF instructional aims is to help the learner gain analyzed linguistic knowledge (Swain, 1985). In order to achieve this, the learner has to pay attention to the code and to notice the form in the input (Schmidt, 1990, 1994) or in his/her own output (Schmidt and Frota, 1986).

Thus, the present experimental study aimed at achieving the following objectives with respect to the immersion learner's cognitive abilities: The first goal was to help the immersion learner to notice the target agreement feature (see Chapter 4) and to notice the gap between his/her own output and that of the native speaker (Krashen, 1983; Schmidt, 1994; Schmidt and Frota, 1986). The second goal was to destabilize the learner's developing system (Selinker and Lamendella, 1979; Sharwood Smith, 1991) and to help the learner gain analyzed knowledge in the form of mental representations (Bialystok, 1988, 1991a, 1994a). The third goal was for the immersion learner to gain control over the acquired knowledge (Bialystok, 1994a; Bialystok and Sharwood Smith, 1985).

3.1 *FUNCTIONAL-ANALYTIC AND EXPERIENTIAL SECOND LANGUAGE INSTRUCTION*

Immersion programs belong to the experiential end of a continuum known as the P-scale (psycholinguistic/pedagogic) for language learning (Stern, 1990). In an experiential setting learning takes place through the use of the environment (functionally). [See Allen (1988) for a description of other experiential programs]. At the other end of the P-scale is the process of conscious study and practice (formally), known as functional-analytic teaching (Stern, 1990). In terms of planning of instruction, functional-analytic teaching is interventionist in that linguistic features are taught in isolation, while experiential teaching can be considered a non-interventionist approach which aims to immerse the learners in real-life communication without any prior selection or arrangement of the language items to be learned (Allen, 1988).

Criteria for the functional-analytic approach include the following (Allen, 1988; Stern, 1990):

- specific language features are made salient to the learner in the areas of pronunciation, grammar or vocabulary;

- linguistic features are decontextualized, examined, explained, compared, put into some order and often recontextualized;
- learners use cognitive strategies in order to facilitate their conscious understanding of the linguistic system;
- opportunities are provided for practice of a linguistic feature;
- attention is paid to accuracy and error correction.

The experiential approach is characterized by the following general features (Allen, 1988; Stern, 1990):

- activities are based on a substantive topic or theme;
- students engage in meaningful activities such as problem-solving, tasks, projects, etc.;
- the language used and the conditions for it has the characteristics of real talk;

- transmission of meaning and fluency are considered more important than error avoidance and accuracy;
- social interaction is conducted in the second language in the classroom.

Both approaches present advantages and disadvantages when considered individually. The advantage of the functional-analytic approach seems to be that often systematic instruction might be welcomed by students because it enables them to try language in a "safe" environment, free from the pressures of a real communicative setting. In addition, the functional-analytic approach makes the forms and functions salient to the learner, which does not always happen in an experiential setting (Allen, 1988). On the other hand, one of the advantages of the experiential approach is that it involves the learners' ability to use the resources of the second language in achieving their own personal, social or academic goals (Allen, 1988). Another very important advantage of the experiential approach is that, for the most part, language is presented in its entirety. This is especially true in immersion programs, where the teacher makes no effort to simplify her vocabulary or to select the use of certain linguistic forms over others. The recorded tapes of the immersion classes involved in this study indicate that teachers in experimental and comparison classes used complex vocabulary pertinent to the science instruction taking place and used all grammatical forms in Spanish, without reservation. That included grammatical features which in the regular foreign language classes appear only at the more advanced levels, such as all subjunctive forms[1], direct and indirect object clitics, all tenses, conditional forms, etc.

It must be recalled that teachers in immersion classes are not focused on language; as a result they also do not restrict their vocabulary or grammatical forms in favor of teaching the subject-matter to their students. Additionally, in a two-way immersion program such as the present study, the native Spanish-speaking students also used a wide range of grammatical forms. The data indicate use of the subjunctive, clitics, all tenses and moods, etc. Thus, the English-speaking learner in these programs is truly exposed to the second language in its entirety every day.

An example from the data, recorded in one of the experimental science classes before the treatment, illustrates this point. Students were instructed to test the magnetic properties of a nail by the nail's ability to lift up a paper clip. The magnetic properties varied according to the amount of times that an electrical cable was wrapped around the nail. The following examples of the teacher's discourse were recorded while the teacher was circulating around the groups to see what the students had done:

4) Group 1 (At the end of the students' discussion)

T: *Perdón, amarraron 20 veces alrededor del clave*[2]
Excuse me, you tied it 20 times around the nail

5) Group 2

T: *Qué tal este grupo, ¿qué han hecho?*
How about this group, what did you do?

S: *Uno*
One

T: *No esto es 5, tienen que poner atención, esto representa 5 veces alrededor del clavo, esto representa 10. Al amarrar el clavo 5 veces*

¿cuántos sujetapapeles, Nadya, llegaron a alzar?
No, this one is five, you have to pay attention, this represents five times around the nail, this represents 10. When you tie the nail five times, how many clips, Nadya, were you able to lift?

S: *Cero*
Zero

T: *OK, entonces aquí de otro color. Ahora, ¿entiendes cómo hacerlo?*
OK, then here of another color. Now, do you understand how to do it?

6) Group 3 (The children are touching the battery which provides electricity to the cables. This battery tends to get hot at times).

T: *Cuidado, no se queman[3] los dedos.*
Careful, don't burn your fingers

S: (Group talk, several children talk at the same time which makes it difficult to understand)

(The children show the teacher the nail with a paper clip attached to it).

T: *Fantástico! y ¿cuántas vueltas dieron alrededor del clavo?*
Fantastic, and how many turns did you go around the nail?

The examples above show the use of past and present tenses, subjunctive forms and direct object clitics (*hacerlo*).

It is important not to compare the worst of functional-analytical with the best of experiential; the comparison is one of degrees rather than of extremes and teachers usually draw from both approaches (Stern, 1990). When viewed in isolation, both approaches present some problems. The functional-analytic approach is often criticized because: a) the phenomenon of language is too complex to teach items in isolation; b) the learner might perceive language in a fragmented way rather than as a coherent whole (Stern, 1990); c) certain aspects of language receive more emphasis than others and, therefore, are over- or under-represented (Stern, 1990); d) practice does not make perfect (Lightbown, 1985); and e) what has been practiced is not necessarily useful in the real world (Stern, 1990).

On the other hand, the experiential approach may be criticized for the following shortcomings: a) the activities students are asked to engage in are often too demanding for their proficiency in the second language (Stern, 1990); b) conditions of natural language are not always easy to meet (Stern, 1990); c) it requires much skill on the part of the teacher to engage all the students in challenging activities (Stern, 1990); d) language instruction may be too implicit to encourage the students to notice the form (Swain, 1985), or the level of language used might be too undemanding to push them to higher levels of accuracy (Genesee, 1987; Snow et al., 1989; Swain, 1985; Zobl, 1985); and e) it requires sustained talk by the students for them to pay attention to *how* content is expressed, a condition not always met, especially in some French immersion classrooms, where research has shown that teachers at times monopolize the talking (Allen et al., 1990; Swain, 1991).

Since neither approach is ideal, it appears that integration of the two is needed for second language acquisition to take place. In the case where a functional-analytic approach is dominant, it is suggested that experiential teaching be incorporated into the curriculum; and, in the case where experiential teaching is the dominant one, it is suggested that some functional-analytic teaching be incorporated into the curriculum (Allen, 1988; Stern 1990).

3.2 *INTEGRATING CONTENT AND LANGUAGE*

The integration of content and language, which started in Great Britain in 1975 with "Language Across the Curriculum," has had an influence on second language instruction in the U.S. since then (Brinton, Snow, and Wesche, 1989). Examples of programs in this country are the ESL courses of Language for Specific Purposes (LSP) and English for Academic Purposes (EAP), as well as Immersion education and content-based instruction (see Brinton et al., 1989, for detailed description of these programs).

The rationale for the integration of content and language comes from diverse perspectives (Brinton et al., 1989; Snow et al., 1989; Spanos, 1990):

1) An integrated approach brings together cognitive and language learning areas, especially in children, who use language for understanding the world.

2) Language is learned most effectively in meaningful, purposeful social and academic contexts.

3) Content provides a motivational (interesting) and cognitive basis (real meaning) for learning. Language then is learned because it provides access to content. Content must be chosen that is both important and interesting to the learner.

4) By learning a special academic register the LEP (Limited English Proficiency) student might develop mastery of the content or academic areas in general.

Although ideally one immersion education goal would be to integrate content and language, in reality it appears that immersion teachers often overlook the opportunity to develop content-compatible language objectives (Snow et al., 1989). Additionally, much of the literature on content instruction has concentrated on showing how academic attainment has not suffered from being instructed in the second language (Pica, 1995). However, research is also needed to show how content and communication can account for language learning success (Genesee, 1987; Harley, 1989; Harley and Swain, 1984; Pica, 1995). The task of teaching language through content, however, is a difficult one for the immersion teacher. In order also to meet language objectives, the immersion teacher would need to take on a dual role, which most often fails to occur, because it places such great demands on the teacher (Pica, 1995; Snow et al., 1989). As a result, immersion programs, where content teaching is the focus of instruction, are sometimes inadequate as a second language learning environment (Swain, 1991).

For example, Swain (1991) reports on a study of a grade six French immersion history class in which she noticed that the teacher used the present tense and the immediate future for pedagogical reasons (not to distance the events) instead of the past tense during most of the discussion. This, however, resulted in the missing of an opportunity for students to integrate content and form (the past tense) in the classroom. Furthermore, by concentrating exclusively on meaning, the teacher provided the learners with inconsistent, and possibly random, information about their target language use; the misleading hidden grammar lesson was that past tense, present and future are interchangeable at all times, rather than under specific conditions such as in story telling. Additionally, the findings show that the teacher corrected only 19% of the grammatical errors by the students. The pattern of correction apparently was based more on an "irritation" factor than on any consistent linguistic or pedagogic considerations (Swain, 1991).

Immersion programs sometimes include functional-analytic teaching, but the emphasis then is on the teaching of forms and functions in isolation rather than as part of the experiential/content instruction (Swain and Lapkin, 1989). For the immersion learner to make form-meaning connections, what is most likely needed is the integration of language and content where neither is taught in isolation (Allen, 1988; Harley, 1993; Pica, 1995; Snow et al., 1989; Stern, 1990; Swain, 1991; Swain and Lapkin, 1989). This might be achieved through the implementation of FonF instruction, such as consistent FonF feedback on the form as well as on the content of the students' utterances; and/or some form of explicit instruction for students to notice the form in the input. Since experiments on integrating functional-analytic teaching in the immersion programs have only yielded partial confirmatory results (Day and Shapson, 1991; Harley, 1989), more research is needed in integrating a specific approach such as the FonF approach in the immersion curriculum. In this study, therefore, the effects of a FonF approach on achieving the integration of language and content in the Spanish immersion classroom was tested.

3.3 *EFFECTS OF INSTRUCTION: Making form-meaning connections through* ***focus-on-form*** *instruction*

3.3.1. *Input processing*

Form-meaning connections occur when the learner comprehends the meaning of a form used or when the learner retrieves the appropriate form to communicate a meaning. For example, in learning the forms *bonito/bonita* (pretty m/f) in Spanish, the learner must associate both forms to the concept of "pretty" and connect each with the appropriate grammatical gender (Terrell, 1991). Explicit grammar instruction, according to Terrel (1991), might facilitate the association process necessary for acquisition to occur. It is possible, then, to hypothesize that explicit grammar instruction might help the learner make the form-meaning connection necessary for the acquisition of redundant morphology to take place (Terrell, 1991).

One way in which explicit instruction can draw the learner's attention to relevant features in the input is through processing instruction (Cadierno, 1992; VanPatten, 1994; VanPatten, in press; VanPatten and Cadierno, 1993; VanPatten and Oikken, 1996). Processing instruction may be considered a type of explicit FonF instruction which encourages the learner to notice a grammatical form in the input. Processing instruction does not entail spontaneously producing or practicing the form at any time (VanPatten, in press). Research indicates that learners tend to process the input for meaning before they process it for form; that is, learners process content words, lexical items and meaningful morphology before grammatical items or less meaningful morphology (VanPatten, in press). Additionally, for learners to process a form that is not meaningful, they must be able to process informational or communicative content at no (or little) cost to attention (VanPatten, 1990, 1994; VanPatten, in press).

The effect of processing instruction has been empirically tested by VanPatten and his colleagues in several experiments aimed at testing the acquisition of direct object clitics (Cadierno, 1992; VanPatten and Cadierno, 1993; VanPatten and Sanz, 1994; Vanpatten and Oikkenon, 1996) and of past tense morphology (Cadierno, 1992) in Spanish. English speakers tend to use an incorrect "first noun strategy" (first NP is the subject of a proposition) in the interpretation of direct object clitics which obligatorily occur in preverbal position with finite verbs in Spanish (VanPatten and Cadierno, 1993; VanPatten and Sanz, 1994). Since word order is more flexible in Spanish than in English, the objective in these experiments was to alter the SVO word order strategy through which English-speaking learners of Spanish assign argument structure to the input. The processing-instruction group received an explanation of the target form and was guided through activities which required subjects to complete receptive exercises only, without producing the structure at any time. The traditional group, on the other hand, was provided with an explanation of the target form which then was followed by immediate practice of that structure (Cadierno, 1992; VanPatten and Cadierno, 1993; VanPatten and Sanz, 1994). Although results from these experiments indicated that the processing instruction group performed equally as well as the traditional group in written production tests and outperformed the traditional group in interpretation tasks, results for spontaneous oral production remain inconclusive (VanPatten and Sanz, 1994) (for further details on these experiments see VanPatten, in press).

One of the problems with VanPatten's research was it was difficult to determine whether results were obtained from input-processing activities alone or from the combination of these with an explicit explanation of the form. In order to tease out the two variables (input-processing and explanation), VanPatten and

Oikkenon (1996) conducted an experiment with three groups which received instruction in object pronouns and word order in Spanish. The first group received processing instruction (explanation plus input-processing), the second group received explanation-only of the form and the third received input-processing activities. Results from interpretation tests showed that learners had improved significantly in the input-processing group and in the processing-instruction group but not in the explanation-only group. Furthermore, there was no significant difference between the two groups which had input-processing activities. This indicated that input-processing was responsible for the gains. The results from production tests, however, did not show a definite advantage for the input-processing group or for the processing-instruction group over the explanation-only group even though all groups improved from pre- to posttests. This would indicate that input-processing activities have the most beneficial effect on interpretation tasks rather than on production tasks.

3.3.2 *Noticing*

The learner's awareness of a form may be raised by focus-on-form instruction which concentrates on making the learner notice the form (Robinson, 1995; Schmidt, 1990, 1993, 1994) while attending to the meaning of an utterance and/or by making the learner notice the gap or mismatch between his/her output and that of the native speaker (Krashen 1983; Schmidt and Frota, 1986). This approach is based on the notion that input becomes intake (Corder, 1967) when the learner makes the necessary form-meaning connections (Terrell, 1991; Schmidt, 1990; Sharwood-Smith, 1986). According to Schmidt, noticing is a critical condition for input to become intake (Schmidt, 1990, 1994). In his study of acquiring Portuguese, Schmidt recorded in his diary that he noticed a form in the input only after it had been taught in the classroom. This enabled him to understand the function of the form better, which, in turn, helped him use it in natural conversation (Schmidt and Frota, 1986). In other words, not until he had made the necessary form-meaning connection did he begin to use the form productively.

Empirical studies on noticing the form have yielded mixed results. In an experimental study, Fotos (1993), for example, compared the effects from teacher-fronted grammar lessons with those of grammar problem-solving tasks to promote noticing the grammatical form. Results indicated that there was no difference between the two experimental groups (grammar lesson and task) in the amount of noticing of the form. Further research is needed in this area, especially, since learners in Fotos' experiment were asked to mark "any special use" of English from read and dictated paragraphs. It is difficult to tell, therefore, whether the learner's correct response might not at times have been purely by chance rather than from noticing the form. Noticing was also investigated by using input enhancement and think-aloud protocols with positive results (Jourdenais et al., 1995, see next section for discussion).

3.3.3 *Saliency and input enhancement*

One way to encourage the learner to notice a form in the input is by making it *salient* (Faerch and Kasper, 1986; Sharwood-Smith, 1991). Saliency may take place when the learner uses psycholinguistic processes such as noticing the end of words (Slobin, 1979), for example, or may be created externally by the instructor or another person guiding the learner in the acquisition process, such as through highlighting or capitalizing a form (Doughty, 1991; Sharwood Smith, 1991). The latter, induced input saliency, is sometimes known as "consciousness raising." The goal of "consciousness-raising" is to promote in the learner the self-discovery of rules, which does not necessarily mean an ability to verbalize the rule (Sharwood Smith, 1981). Consciousness-raising should act as a facilitator in the learning of grammar by drawing the learner's attention to the formal properties of grammar (Rutherford and Sharwood Smith, 1985). Because the term "consciousness raising" implies that the learner's mental state is altered in some way, Sharwood Smith proposed revising the concept to emphasize input enhancement aspects instead (Sharwood Smith, 1991, 1993).

Saliency was effectively utilized by Doughty (1988, 1991) as a realization of focus-on-form instruction. Doughty investigated the effect of computer-based instruction on the acquisition of relative clauses in English. The two experimental groups in the study, meaning-oriented (MOG) and rule-oriented (ROG), were exposed to salient input by way of capitalizing and highlighting it (MOG) and by "decomposition" and "composition" of sentences through computer animation (ROG). Results indicated that both groups performed better than the control group on relativization. It is worth noting, though, that, in addition to saliency, the MOG had also been exposed to redundancy through repetition and paraphrase of meanings (Doughty, 1991).

In a study of university students, input enhancement was used to assess whether learners notice a form in the input (Jourdenais et al., 1995). One group was exposed to a Spanish text where all the preterit and imperfect forms were highlighted. Students in the comparison group received the same text without enhancement. Think-aloud protocols were collected during a picture-based task in which the learner was required to write a narrative. The protocols indicated that learners in the enhancement group engaged in more episodes related to the discussion of the preterit and imperfect than learners in the comparison group. Additionally, the first group also showed a higher level of accuracy on the target forms in their written production. Further research of this kind is necessary to determine whether input enhancement would also lead to noticing during oral production tasks. Results in oral production accuracy were obtained by exposing university students in a Spanish content-based class to input enhancement (Leeman, Artegoitia, Fridman, and Doughty, 1995). However, in this experiment input enhancement was used in addition to oral feedback; therefore, it is difficult to state whether input enhancement alone was responsible for the effect (see 3.4 for further discussion).

Typographical input enhancement did not appear to have a strong beneficial effect on the acquisition of third person singular pronouns and possessive determiners in English by French-speaking children (J. White, 1998). This experimental study had three groups: input enhancement flood with extensive reading and listening; input enhancement flood; and unenhanced input flood. The tests included a passage correction task, a multiple choice test and an individually administered oral picture description task. Accuracy results from all tests showed that there were no statistically significant differences among the groups. Nonetheless, White noticed that all three groups improved in their ability to use possessive determiners in English, and believes that some of the differences among the groups may have been canceled out due to intra-learner variability and due to the fact that all three groups were exposed to tests which could have encouraged the learners to notice the form. However, in answering a questionnaire about typographical enhancement, the learners mentioned that it helped them understand the text and "words which were difficult." Apparently, they had not noticed the grammatical forms in the input (J. White, 1998). This problem is relevant to the present investigation, since it remains to be seen whether immersion learners notice the form in the input from very subtle and incidental feedback (Pinker, 1989; Schmidt, 1994).

3.3.4 *Attention and awareness*

Researchers have proposed that attention may facilitate the process of noticing a form (Robinson, 1995; Schmidt, 1994; Tomlin and Villa, 1994), and attention is considered necessary for the conversion of input to intake (Schmidt, 1990, 1993, 1994). Tomlin and Villa (1994) view attention as a process of selecting critical information for further processing; it is effortful rather than automatic. Their theory outlines three components of the attentional process: alertness (readiness), orientation (aligning of attention), and detection (cognitive registration of stimuli). Of the three, they identify detection as the one which contributes to the process of noticing, and is, therefore, the most important component in second language acquisition.

Relevant to attention is the concept of awareness and/or conscious learning. Ever since Krashen proposed that language acquisition takes place without conscious knowledge of the rules (Krashen, 1982, 1983), researchers have discussed the issue in the literature without reaching consensus (Bialystok, 1991a; Hulstijn and

Schmidt, 1994; McLaughlin, 1987; Schmidt 1990, 1993, 1994a; Schmidt and Frota, 1986; Sharwood Smith, 1991). Awareness, which has replaced the notion of "consciousness" in some of the SLA literature (Bialystok, 1994a:164), is still vaguely defined (Schmidt, 1993), though, and its importance in language acquisition is the subject of much debate (Bialystok, 1991, 1994a; Robinson, 1995; Schmidt, 1990, 1994; Tomlin and Villa, 1994). The controversy revolves around the role awareness plays in the attentional process. Tomlin and Villa (1994) consider awareness to be a state of mind in which an individual undergoes a specific subjective experience of an external stimulus or of some cognitive content. Tomlin and Villa cite three criteria for awareness: the person has to show some behavioral or cognitive change, the individual should be able to report being aware of the experience, and the person should be able to describe the subjective experience. They argue that awareness is not necessary for detection of a stimuli to occur (Tomlin and Villa, 1994). On the other hand, Schmidt (1994) and Robinson (1995) refute this position and maintain instead that awareness is essential to the attentional process. Furthermore, Robinson (1995) claims that it is detection **plus** awareness that leads to noticing; moreover, Robinson (1996) operationalizes awareness as verbalizability, which means that learners can express a rule. Bialystok, on the other hand, distinguishes between awareness and consciousness (Bialystok, 1988, 1991a, 1994a). She maintains that consciousness is not a critical factor in the process of language analysis (see 3.3.5 below) but suggests that awareness is. She cites three other factors which might play a role in language analysis: 1) self-reflection of knowledge (understanding the structure of what we already know), which often results in restructuring; 2) literacy (effects remain inconclusive), and 3) instruction, an explicit rule must be within the learner's zone of proximal development (Bialystok, 1991a). Furthermore, Bialystok suggests that critical to awareness is attention, and that attention is a construct that has psychological reality. "Attention is the process that brings something into awareness" (Bialystok, 1994a:165). For Bialystok (1994a), knowing a rule means being aware of the rule rather than just using it.

Given the ongoing nature of these debates, for this study's purpose, it was assumed that attention and awareness are important factors in the second language learning process. Contra Robinson (1996) and following Bialystok (1994a), awareness does not necessarily mean that a learner can verbalize a rule, but that the learner recognizes the existence of a regular pattern or is aware of it. This process could take place, for example, when, rather than just pay attention to the meaning of an adjective in Spanish, a learner might detect or recognize its feminine form when adjacent to a corresponding feminine NP. If prompted, the learner might or might not be able to verbalize the corresponding noun-adjective agreement rule. This recognition with awareness of the feminine form is important because it would represent an initial stage in the process of acquisition.

3.3.5 *Language analysis and control*

Awareness, according to Bialystok (1994a), is the result of the interaction between analysis and control; as mentioned in Chapter 1, together these two types of knowledge define language proficiency (Bialystok, 1988, 1991a, 1991b, 1994a, 1994b; Bialystok and Sharwood Smith, 1985). Making form-meaning connections through a balanced process of attention may lead quickly and efficiently to analyzed knowledge (Bialystok, 1988). Analyzed knowledge differentiates itself from unanalyzed knowledge in that in the former a proposition's formal structure and its relationship to meaning are apparent, while in the latter this is not the case (Bialystok, 1988). The importance of analyzed knowledge is that it enables the learner to use the acquired knowledge in new contexts (Bialystok, 1988; Bialystok and Sharwood Smith, 1985). Bialystok (1988) warns, though, that unanalyzed knowledge is essential for analyzed knowledge to appear, an example of which would be encouraging comprehension before production. Based on this theory, one would assume that, since immersion learners' comprehension skills may be considered native-like (Barfield and Rhodes, 1994; Genesee, 1987; Harley et al., 1990), they will have acquired substantial unanalyzed knowledge; this, in turn, should facilitate the acquisition of analyzed knowledge which could be facilitated by FonF instruction.

The second component in Bialystok's definition of language proficiency, i.e., control, refers to the selective attention to relevant and appropriate information about forms and meanings carried out in *real time* (Bialystok, 1991a, 1991b 1994a). Control is closely related to fluency, which, according to Bialystok (1991a), is the result of control procedures for selecting and incorporating information in response to problems. For this study's purpose, control is considered to involve attention over analyzed linguistic knowledge, i.e., retrieval of accurate forms.

In sum, the cognitive processes of noticing, attention, awareness, and language analysis and control are important in second language acquisition, because they promote form-meaning connections, which in turn, facilitate the process of language acquisition.

3.4 *IMPLICIT FonF INSTRUCTION: negative input, quality input, negative evidence, corrective feedback*

The immersion program typically does not include corrective feedback in its curriculum. Research has shown that there is much variation among teachers in offering negative feedback to students' utterances in these programs. Most feedback centers on clarification of meaning, is usually unelaborated and is often provided in an inconsistent and unsystematic manner (Allen et al., 1990; Chaudron, 1986; Spada, 1990; Swain, 1985, 1991; Swain and Lapkin, 1989). Since immersion students are exposed to comprehensible input but not to any *consistent* negative feedback that will encourage them to test their hypotheses early on in the program (Swain, 1985), it is apparent that what's missing is *quality input*. Quality input consists of feedback provided precisely at the time that the learner is trying to communicate something meaningful (Lightbown, 1992). The FonF type of instruction used in the present study was that of corrective or negative input, a type of feedback that aims to let the learner know that his/her utterance was somehow deviant or unacceptable to the native speaker (Schachter, 1984).

Sources of negative input in L1 and L2 are not restricted to explicit error correction, but to other more subtle types of feedback taken from theories of interactional modification (Long, 1983a) such as confirmation checks, clarification requests and recasts (Schachter, 1984; White, 1987). In particular, *recasts* are used by parents of young children as well as by teachers in the classroom to reformulate a child's or a learner's deviant utterance correctly without changing the intended meaning (Doughty, 1993b; Farrar, 1990). For example, in the following utterance, a mother added the -ing morpheme without changing the meaning of the utterance.

7) C: *phone ring*

*M: the phone is rin**ging*** (Farrar, 1990)

The theory behind the effect of recasts, and of negative input in general, as being facilitative to acquisition is that it enables the learner not only to get comprehensible input (rough-tuning) (Krashen, 1982) but to help him/her notice the gap (fine-tuning) between his/her utterance and that of the native speaker (Doughty, 1993b; White, 1987). Additionally, negative input may be facilitative in helping the learner revise an incorrect rule (White, 1987). White (1987) argues that learners are unable to notice the absence of a form in the input and that, therefore, they need correction or negative input to eliminate an intermediate form (e.g., *John donated the hospital some money). Furthermore, for correction or feedback to be effective, the learner must know he/she is being corrected (Schmidt, 1994).

3.4.1 *Empirical studies: feedback and FonF in combination with feedback*

Some research exists from experiential and communicative settings on the implementation of implicit feedback by itself or in combination with explicit FonF instruction (Doughty and Varela, 1998; Leeman et al., 1995; Lightbown, 1991, 1992; Lightbown and Spada, 1990; Spada and Lightbown, 1993). To my knowledge, though, none has been reported from Spanish immersion programs.

Recent research on the role of long term-implicit immediate feedback in the ESL content classroom showed that incidental FonF is effective (Doughty and Varela, 1998). Doughty and Varela investigated the acquisition of past tense and past tense conditional in a middle school ESL science class. Feedback in the form of recasts and repetitions was provided during the curriculum-based tasks and in other situations. This included oral tasks and oral feedback as well as written tasks and written feedback. Students were encouraged to repeat the corrected form every time feedback was provided. Results indicated that the students gained in the acquisition of past tense and past conditional in English. Furthermore, results from delayed post-tests indicate long-term results. This research is important because it was conducted within the realm of a classroom, approximating, therefore, the conditions that teachers and students encounter all the time. Additionally, this research is particularly relevant to the present study because it was conducted in an experiential setting similar to that found in the immersion program. One possible problem with this research could be the fact that the teacher repeated the error first with high rising intonation, which makes the feedback somewhat explicit.

experiment). In the first experiment, learners in the experimental group outperformed learners in the control group (i.e., without corrective feedback) in short-term but not in long-term acquisition. However, in the second experiment, learners outperformed the control group both in short- and long-term acquisition. Lightbown concludes that FonF is effective because it is related to timing the feedback precisely when the learner is trying to communicate something meaningful, and as such it can be considered *quality input* in the classroom. Although this latter study is important because it emphasizes the role of quality input in the classroom, it is difficult to determine which of the variables, FonF explicit instruction or feedback, or a combination of the two, accounts for acquisition. FonF proved to be effective in a university content-based Spanish class in which implicit and explicit feedback in combination with written input enhancement techniques were used (Leeman et al., 1995). This study is important because results indicate that learners can improve their accuracy in the target form (preterit and imperfect in this case) while attending to meaningful content instruction.

However, it is difficult to determine from this study which of the types of feedback (implicit or explicit) was effective. Furthermore, the use of input enhancement techniques, in addition to feedback, makes it difficult to isolate the FonF variable responsible for the positive effect obtained. While this study took place in a content-based setting, the experimental class was still part of the foreign language program in which the learners had been previously exposed to regular explicit metalinguistic instruction of the target form. It is difficult, therefore, to determine how much of the latent metalinguistic knowledge was awakened as compared to how much was acquired through FonF (Ortega and Long, 1997). This is somewhat different from the learners in the present immersion study, who have been involved in content-based instruction since the early grades and can, therefore, be considered to have been instructed in a true experiential setting all along.

Research shows that corrective feedback provided by the teacher can be beneficial in second language acquisition (Harley, 1989; Lightbown, 1991; Lightbown and Spada, 1990; Spada and

Lightbown, 1993; Stein, 1995). Lightbown (1991), for example, conducted a descriptive study of French speakers in an ESL strictly communicative setting where learners used the form "have" as an introducer rather than the more accurate form "there's." Results indicated that of the four classes under investigation, only one class showed an almost total absence of the less accurate form "have" because the teacher in this class had corrected the form by providing negative feedback all along. Harley (1989) noticed that only one class of immersion learners in her study gained in written production in spite of the analytic teaching materials provided for eight weeks. Again, the teacher in that class had provided consistent feedback to these students' written compositions. In an experiment in which learners received approximately nine hours of focus-on-form instruction and corrective feedback on English question formation over a two-week period, surprising results were obtained from the comparison group (Spada and Lightbown, 1993). Learners in that group made the most progress in the accuracy tests and progressed further than the experimental group in the follow-up tests. Apparently, the teacher in that class had been administering something akin to focus-on-form instruction combined with corrective feedback over a long period of time. However, it is not entirely clear what type of focus-on-form the teacher provided. In an observational study, Lightbown and Spada (1990) conducted macro- and micro-analysis on the acquisition of plural -s and -ing suffixes by French middle school learners of English in a communicative setting. Results indicated that teachers never offered explicit grammar lessons but used corrective feedback at the moment the gap was detected. Oral feedback in combination with a communicative FonF task in which students first planned and then implemented a *fashion show* in Spanish (Stein, 1995), appeared to be effective in the acquisition of noun-adjective agreement features (gender and number) in Spanish. In a quasi-experimental study, sixty-three subjects of three second year high school Spanish classes were divided into three groups: a FonF task+feedback group, a FonF task-only group and a no-instruction group which did not prepare for a fashion show. Students in the two experimental classes prepared in groups of three for a fashion show; that is, they made lists of items and discussed what they would wear for the fashion show. Students in the FonF task+feedback received oral recasts while discussing the preparation for the fashion show; the students in the FonF task-only group did not receive any feedback. After the planning session, the students in the two FonF task groups took turns modeling in a fashion show while the other members took turns describing the outfits worn in front of the rest of the class and the teacher. Additionally, the teacher in the task+feedback group gave a recast every time an error in N-A gender or number agreement was detected; the FonF task-only group received no feedback. Results showed that the FonF task+feedback group had significant gains in adjectival gender agreement from pre- to posttests which did not decrease in the delayed posttests in the oral production test. Additionally, the task+feedback group showed significantly higher gains than the task-only group in the oral production tasks. However, the gains were matched by the control group, which apparently had received oral feedback in the form of recasts from the teacher for the duration of the treatment. When debriefed, the teacher in the control group explained that she misunderstood the instructions and gave feedback, which consisted of a recast preceded by a repetition (similar to Doughty and Varela, 1998) on the target feature. She added that feedback had been a regular technique in her classroom all along (similar to Spada and Lightbown, 1993).

The studies above suggest that corrective feedback at the time the gap or mismatch is detected is an efficient focus-on-form type of instruction because it draws the learner's attention to the gap (Schmidt and Frota, 1986) precisely when the learner is trying to communicate a meaning (Lightbown, 1992). This is important because it contrasts with most experimental studies on the effect of feedback in other instructional settings such as in the traditional classroom environment (Tomasello and Herron, 1989, 1990). These latter studies appear to show positive results, but it is doubtful that these experiments encouraged the learner to make form-meaning connections, since learners were corrected after a choral response, which does not appear to be communicative or interactional in any way.

Research from strictly laboratory experimental settings has shown that although corrective feedback proved to be effective in the acquisition of morphological French forms by English adult speakers, it did not appear to lead to generalizations outside of the immediate context of the feedback provided (Carroll, Swain, and Roberge, 1992). More encouraging results from contrasting explicit and implicit feedback was obtained from an experiment in the acquisition of dative forms in English in which learners who had been exposed to both types of feedback outperformed the control group which had received no feedback. The same results were obtained after a week's time and when tested on "novel" guessing items (Carroll and Swain, 1993). Although this study was conducted in a strictly experimental setting rather than within the realm of a classroom environment, the researchers argue that if the treatment was effective under experimental conditions, the same results would likely obtain from the classroom setting.

Implicit feedback (recasts) provided better results than modeling in an experimental study of Spanish (Ortega and Long, 1997). Additionally, the experimental group showed better results than the comparison group with no instruction. This research is relevant to the present study, because the researchers used feedback in the form of a recast followed by a tag question.

Ortega and Long investigated the acquisition of direct object topicalization (*la guitarra la tiene Pepe*, the guitar, Pepe has it) and adverb placement, which is allowed between the verb and the direct object in Spanish (*Juan bebe todos los días café*, *Juan drinks every day coffee). The structures were presented under the conditions of modeling and recasts to four treatment groups and a control group. All prompts were pre-recorded and delivered through headphones. For the two communication tasks, subjects manipulated cutouts on a felt board. The instruments of testing consisted of an oral picture-description task (production) and of a grammaticality judgement task. Results indicated that subjects hearing recasts on adverb placement scored significantly higher than those hearing models.

This would indicate that negative feedback in the form of a recast is effective. However, no results were obtained for the target feature of topicalization, which apparently proved to be too difficult for the learners. The researchers suggest that it is important for learners to be developmentally ready for a form in order for FonF to have any effect. The learners in the present study seemed to be ready for subject-verb and noun-adjective agreement instruction (see section 4.0.2).

In sum, the type of FonF instruction which was implemented in the present study, corrective, implicit feedback, aims at facilitating the learner's process of making form-meaning connections by focusing the learner's attention on his/her own output. Implicit feedback, however, has been criticized for vagueness of "blame assignment", i.e., failing to provide the learner (or the child) with a source for the error (Pinker, 1989). Some studies on feedback have been able to overcome this deficiency by adding more explicit means of drawing the learner's attention to the form, such as an initial repetition of the incorrect utterance with high rising intonation

(Doughty and Varela, 1998) or an overt question such as in "you saw *what?*" (Muranoi, 1996).

In order to isolate the variable investigated, however, the present study did not introduce a second technique for drawing the learner's attention; thus, it remained to be seen if the question of "blame assignment" would be resolved in this study. Rather, the teacher in the present study followed the utterance with a tag question only, aimed at discouraging the learner from producing any output which could confound the variables (Ortega and Long, 1997), e.g.,.

8) S: *(yo) cree que va a ser rojo*
He/she believes (meaning, I believe) that it will be red

T: *creo que va a ser rojo* ***¿no?***
I believe that it will be red, **no?**

3.5 *SUMMARY*

Analytic and experiential teaching are at the opposite ends of a continuum, where the first emphasizes the teaching and learning of forms and the other emphasizes communication in the second/foreign language. It is important to consider neither in isolation but as an integrated whole, drawing from one or the other as the need may arise. Thus, a predominantly experiential approach such as is found in immersion teaching needs to be integrated with some form of functional-analytic instruction. However, researchers who have implemented functional-analytic activities into the immersion curriculum have obtained only small improvements, partly because sometimes timely feedback was missing, or the materials were not congruent with the content instruction. To address this problem the present study implemented a FonF approach which integrated language and content instruction with timely provided feedback, which was easily integrated into the content curriculum.

In order for the input to become intake, though, it has been suggested that learners need to notice the form in the input and to notice their own gap in their output. Negative feedback in the form of recasts has been proven to be beneficial in first language acquisition in helping the child notice a form; studies in second language acquisition suggest that the same might be true for L2 learners. Additionally, as the learner notices the form, it is hypothesized that the learner's linguistic knowledge progresses from unanalyzed to analyzed knowledge, which, in turn, should be reflected in the learner's capacity for retrieving this knowledge (control of linguistic knowledge).

In integrating language and content, the aim is for the immersion learner to make form-meaning connections. Several types of FonF instruction could achieve this goal, among them are input enhancement, output production, and feedback. Immersion classrooms, however, are notoriously lacking in feedback on language structures. Most feedback in these programs revolves around meaning and content; and, if there is language feedback provided, it is often inconsistent. Studies on feedback in communicative settings show that recasts are effective; however, more research is needed to isolate the recast variable, without other accompanying techniques such as explicit instruction, repetition of the form by the teacher, repetition of the corrected form by the student or intonational devices and questions which may also alert the learner to the error. In the end, a combination of techniques might be useful in the immersion classroom, however, for now, it is important to separate the variables in the research.

NOTES TO CHAPTER 3

1. The teacher in this particular study happened to show variability in her use of the subjunctive, i.e., she did not always use a subjunctive form where the context required one. This was not due to her desire for simplifying her language, but rather (by her own admission), because being a second generation bilingual herself, she had not fully acquired the subjunctive form.

2. The word for nail was used with variability by the teacher, sometimes she pronounced the accurate *clavo*, other times she said *clave*.

3. This context actually required an imperative plural form, which is identical to subjunctive forms. The teacher used an indicative form instead because of the variability with respect to subjunctive and imperative forms in her speech.

CHAPTER 4

THE TARGET OF INSTRUCTION AGREEMENT IN SPANISH

4.0 *INTRODUCTION*

The target form of instruction was the morphosyntactic agreement (concord) feature. Specifically, the present study addressed noun-adjective agreement (N-A) in the noun phrase and subject-verb (S-V) agreement in the verb phrase. These types of agreement were chosen because the literature on Spanish immersion programs consistently identified them as areas of grammar which show lack of accuracy in the student's speech in all grades at the elementary school level (Barfield and Rhodes, 1994; Boyd, 1975; Christian, 1996; Cohen, 1974a, 1974b; Plann, 1979). In a cross-sectional descriptive study of 24 Spanish immersion English-speaking students in grades one through four, Plann (1979), for example, found that children had not acquired N-A or S-V agreement and that there was no trend for improvement across the grades. Some examples from errors provided by Christian (1996), who studied two-way immersion programs across the United States, are:

Subject-verb agreement

9) *yo necesita* (vs. *yo necesito*) más. "I need more" (grade 2)
yo dice (vs. *yo digo*) "I say" (grade 6)

Noun-adjective agreement

10) *mi pequeño hermana* (vs. *mi pequeña hermana*) "my little sister" (grade 4)

One of the main reasons the problem exists and persists is probably due to the fact that immersion learners appear to process language semantically most of the time (Stevens, 1984; Swain 1985). Data from studies on L1 Spanish speakers indicate that children process noun-adjective agreement based on syntactic and morpho-phonological clues rather than semantic clues (Pérez-Pereira, 1991). However, immersion learners are concerned primarily with getting their message across. As a result, they resort from early on in the program to using unmarked forms for verbs and adjectives in all contexts without showing any signs which would indicate that they have developed syntactic knowledge of agreement for these forms (Stevens, 1984). This lack of linguistic analyzed knowledge with respect to agreement features is reinforced by the fact that immersion learners are not encouraged in any way to notice grammatical features in the input or in their own output (written or oral). In turn, this lack of noticing becomes compounded by the differences between English and Spanish grammar with respect to agreement. For noun-adjective agreement the learner not only has to notice a rule, but the rule to be noticed has very little communicative value and is absent in English altogether. With respect to subject-verb agreement, the Spanish immersion learner is faced with a rule which manifests itself in a system characterized by much richer inflectional morphology in Spanish than in English. Thus, it was expected that FonF instruction on S-V and N-A agreement would help the learner notice these forms. Furthermore, teachers in these programs often seem not to notice problems in these forms in the learner's output. The teacher in the present study, for example, by her own admission, began noticing lack of agreement (S-V and N-A) in the learners' speech only after she was made aware of this problem by the researcher.

The S-V and N-A agreement features chosen in this study not only reflect a major problem reported in the literature of Spanish immersion research, but also in the Canadian immersion research. Inclination toward lexically-oriented learning appears to be a problem in all immersion programs. Harley (1994) reports that the immersion learner's repertoire in French consists mainly of phonologically salient, high frequency items, accompanied by syntactic patterns that are generally congruent with the L1. This lexically-oriented learning is in accordance with the task demands of the learners' subject-matter where the most important need is for comprehension and expression of meaning in context. Less salient morphosyntactic features of the target language, which are incongruent with the learner's L1 and/or not crucial for comprehension or for transmission of meaning, may not become intake. An example of this is the gender assignment on nouns and articles in French. Lack of saliency, lack of presence in the learner's L1, and especially lack of tasks demands for the learner to notice these forms are factors which contribute to the consistent lack of accuracy on these forms by the immersion learner[1]. Instruction which activates the cognitive processes of noticing and of awareness, and which can be stimulated by feedback in the oral or written mode and by formal or functional activities, are important factors in the process of making the features salient to the learner (Harley, 1994). Based on the research in Spanish and French immersion, the present study concentrated on the less salient morphosyntactic target agreement features of subject-verbs and noun-adjectives in Spanish. These features are incongruent with the learner's L1 (English) and were, furthermore, not emphasized in any consistent way in the experimental classes in this study. Additionally, Harley (1994) recommends incidental over intentional instruction for children. The present research study is based on incidental instruction (recasts) which aims at helping the learner notice the target forms in the input and in the learner's own output.

4.0.1 *Target feature differences*

In order to better investigate the acquisition of agreement features in Spanish it seems wise to examine the degree of difficulty which each of these features presents. Rules can be defined by certain characteristics (Doughty and Williams, 1998), some of which are saliency in the input (frequency or usualness), communicative value (meaningfulness in the output), inherent difficulty of rules based on functional (form-function relationship) and formal complexity (many or few surface form variations), reliability (how dependable a rule is), scope (wide or small scope depending on how many forms the rule applies to). Additionally, the communicative value of a rule can be defined in terms of its inherent semantic value and its degree of redundancy (VanPatten, 1994). VanPatten (1994) gives the example of third person *-s* in English as having great inherent semantic value because it encodes person and number, but is redundant because the learner can interpret the meaning of an utterance from the preceding obligatory subject in English.

Furthermore, two factors determine whether a rule is most easily learned as a similarity pattern or whether the learner must induce an abstract rule, in which case it is argued that it becomes harder to notice the rule without explicit instruction (De Keyser, 1998). These factors are surface form variation (subject-verb agreement in Spanish is morphologically diverse) and distance between co-occurring elements (inserting an adverb between subject and verb, for example). Finally, typological universals (Eckman, 1977; Gass, 1979; Greenberg, 1966) play a role in the degree of difficulty that a rule might have. According to the Markedness Differential Hypothesis (Eckman, 1977), the areas of the target language that are different from the L1 and are relatively more marked in L2 (see section 4.1.1) than in L1 will be difficult to learn.

In view of the characteristics described above, the target agreement features in Spanish (N-A gender, N-A number and S-V agreement) can be described as ranging from very difficult to less difficult. It appears that N-A number agreement is acquired before and more easily than gender agreement by immersion learners (Boyd, 1975; Plann, 1979). Plann explains that the concept of number exists in English in nouns and in demonstrative adjectives (these and those) while grammatical gender in nouns and noun-adjective gender agreement is totally absent in English. Research in the acquisition of French number and gender by English-speaking children indicates that number is acquired before gender (Ervin-Tripp, 1974). This difference is also reflected in Van Naerssen's (1986) order of acquisition hierarchy chart for Spanish (see below) where number agreement appears before gender agreement. The features on the chart are stated in descending order of acquisition: present indicative at the beginning, noun-adjective number agreement at the middle and noun-adjective gender agreement last (Van Naerssen, 1986).

FIGURE 1: ORDER OF ACQUISITION HIERARCHY
(Van Naerssen, 1986)

Present indicative *
Periphrastic future
Indefinite article
Noun-article number agreement
Noun-adjective number agreement
No Negation
Definite article
Demonstrative adjective
Imperfect past *
Possessive adjective
Relative pronoun
Noun-article gender agreement
Noun-adjective gender agreement

*Immersion learners do not show accuracy in subject-verb agreement (asterisk marked by Van Naerssen)

The problem with Van Naerssen's study is that the data were collected from several child L2 acquisition studies in a natural environment, some of which included learners in Spanish immersion (Boyd, 1975; Cohen, 1976; Plann, 1979), rather than from the children directly. More importantly, although Van Naerssen notes that this is a hierarchical order for acquisition, the reader is not informed on how she arrived at this order. As a result, one must consider Van Naerssen's research with caution. Van Naerssen herself admits that more research needs to be done to corroborate her findings.

Number and subject-verb agreement (at least in English) are considered by Krashen (1982:97-98) to be "easy" rules as opposed to more complex rules which involve movement of elements, such as WH-questions. It is difficult to determine from Krashen's discussion where gender agreement in Spanish would fit in the easy-complex continuum of rules, however. The pilot study (see section 5.1) suggests that learners who speak Spanish at home and do not have much or any difficulty with subject-verb agreement still have problems with noun-adjective gender agreement. This would indicate that it might not be as "easy" a rule as plural formation, or, rather, that its control (Bialystok, 1994) or its memorability (Robinson, 1996) is somewhat more difficult to acquire.

The rules for adjectival number and gender agreement overlap in many characteristics: both are non-salient; both appear to be relatively less frequent than gender and number in nouns (by virtue of adjectives appearing to be less frequently used than nouns); both are very reliable rules; neither is functionally complex; both rules have broad scope; both present marked forms (feminine and plural); both have similar low communicative value, that is, both have inherent semantic value (gender and number); both are redundant (the noun carries gender and number); and finally, both rules are morphologically simple, without great surface form variation.

The question remains, then, if adjectival gender and number agreement have so many characteristics in common, why does research show that number is easier to acquire than gender agreement? The answer probably lies in the one difference already observed by Plann (1979), that only the concept of number exists in English. The English-speaking learner is familiar with plural forms in nouns and demonstrative adjectives in English, while the concept of arbitrary gender in nouns and noun-adjective gender agreement is unknown to the English-speaking learner. Harley (1998) argues that L1 English predisposes learners not to notice grammatical gender in L2 French. If we invoke Eckman's (1977) Markedness Differential

Hypothesis (see above), then, in view of the discussion above, we can conclude that the area of L1 that is marked in L2 is less different for number (marked plural forms exist in L1) than for gender agreement in Spanish. It is not surprising, then, that the acquisition of gender agreement is more difficult than that of number agreement for L1 English-speaking learners.

VanPatten (1994) argues that the acquisition of subject-verb agreement or "meaningful morphology" is easier than noun-adjective or "non-meaningful morphology" in Spanish. VanPatten bases this assertion on his earlier studies on the communicative value of verbal morphology in English. As mentioned above, third person -s has inherent semantic value but is redundant, so its communicative value is limited; the progressive -ing morpheme in English has inherent semantic value and is not redundant; it has, therefore, high communicative value. The past -ed morpheme in English has inherent semantic value and is sometimes redundant according to whether it as accompanied by an adverbial or not; its communicative value is, therefore, variable. VanPatten (1994) does not give specific examples for Spanish, but from the research discussed above and from his other studies on the competition for attention on content versus form in the input in Spanish (VanPatten, 1990), VanPatten concludes that meaningful morphology in Spanish will be acquired before non-meaningful morphology.

In order to examine the issue further, it is wise to draw a comparison between the subject-verb agreement rule (S-V) and the noun-adjective agreement rule (gender and number) (N-A). The rules overlap in the following traits: both are non-salient; both are very reliable; both are functionally non-complex; both have very broad scope; both have marked forms; both have inherent semantic value. They differ in the following traits: the rule for S-V agreement appears to be used more frequently than N-A agreement (by virtue of verbs being more frequently used than adjectives); S-V agreement in Spanish has inherent semantic value and is non-redundant (Spanish being a pro-drop language); its communicative value, therefore, is very high, while N-A agreement is redundant, which makes its communicative value very low; S-V agreement in

Spanish has great surface form variation, that is, it is morphologically complex while N-A agreement is morphologically simple; and finally, the rule for S-V agreement exists in the third person present in English, while N-A agreement does not exist in English at all. These traits would indicate that the acquisition of S-V agreement has great potential for being easier than that of N-A agreement, at least that of N-A gender agreement.

However, the acquisition of S-V agreement does not appear to be easier than that of N-A number agreement. The concept of nominal plural does exist in English and applies to all nouns (broad scope), while the concept of S-V agreement exists only in the third person present in English (narrow scope). Furthermore, since number agreement seems to be acquired more easily than gender agreement in Spanish, and since the S-V agreement rule has great surface form variation, it is hypothesized in this study that the acquisition of S-V agreement will yield better results than that of N-A gender agreement but not necessarily than that of N-A number agreement.

The following table indicates the most important differences among the target features:

FIGURE 2: TARGET FEATURE TRAITS

Characteristic	N-A Gender	N-A Number	S-V
Salient	NO	NO	NO
Frequent	NO	NO	YES
Reliable	YES	YES	YES
Functionally complex	NO	NO	NO
Scope	BROAD	BROAD	BROAD
Communicative value	LOW	LOW	HIGH
Marked Forms	YES	YES	YES
Rule exists in L1	NO	YES (only In nouns)	YES but very narrow scope: (third person)
Inherent semantic value	YES	YES	YES
Redundant	YES	YES	NO
Morphologically complex	NO	NO	YES

4.0.2 *Readiness*

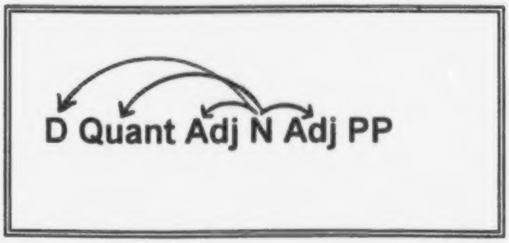
Focus-on-form research in the acquisition of French gender in nouns and gender agreement in articles (Harley, 1998) indicates that immersion learners as young as second graders appear able to process gender phonologically and syntactically in French (see section 2.3.3 for details about this study). This would indicate that the learners in the present study who are in fourth grade immersion classes would also be ready to process gender agreement in Spanish. Furthermore, since research indicates that the acquisition of adjectival number agreement is easier than that of gender agreement in Spanish (Boyd, 1975; Plann, 1979), learners in the present study will be expected to be ready for instruction in number agreement as well. Furthermore, as indicated in the discussion above, and based on its communicative value, the acquisition of subject-verb agreement should be easier than the acquisition of gender agreement in Spanish (VanPatten, 1994). It is hypothesized, therefore, that learners in the present study should be ready for the acquisition of subject-verb agreement as well.

4.1 *AGREEMENT IN THE NOUN PHRASE*

All types of agreement refer to agreement with an NP (Lehmann 1988:58). Thus, agreement in Spanish takes place between an NP and its modifiers in the noun phrase and between an NP in subject position and the verb in the verb phrase (Whitley, 1986).

The Spanish noun phrase requires that adjectives and determiners agree with the head noun in number and gender. Within the NP, the gender and number features of the head spread to its inflected modifiers, a process which Bull (1965:104) describes as *matching*.

FIGURE 3: AGREEMENT IN THE NOUN PHRASE (Whitley, 1986:57)



As evidenced from the figure above, morphological agreement in Spanish is evident everywhere in the NP except in the PP, e.g.,

11) *las iguanas simpáticas*
the nice iguanas

In the example above, the adjective *simpáticas* and the determiner *las* are inflected with the same feminine, plural suffixes as the noun *iguanas*.

4.1.1 *Markedness*

Immersion students, like many L1 English learners of Spanish (Andersen, 1984a; Cain, 1987; Finemann, 1990, 1992), often use the default masculine singular form of the adjective in all contexts, including where feminine and plural forms are required (Boyd, 1975; Cohen, 1974a, 1974b; Plann, 1979). This is related to what Slobin calls *inflectional imperialism* (Slobin, 1985), since the child resorts to one form, the default form, the most salient in the input, which results from failure to establish a paradigm. This is similar to Andersen's (1984b) *one-to-one principle*, a process of language simplification in which one form is associated exclusively with one function and meaning, e.g.,

12) ***el** silla sucio* (m)
literal translation: the dirty (m. s.) chair

intended meaning: the dirty (f. pl.) chairs:

las sillas sucias (f)
the dirty chairs (pl)

The default masculine singular has been identified by linguists as the morphological *unmarked* form (Andersen, 1984; Finemann 1990, 1992; Greenberg, 1966; Prado, 1982). There is a universal tendency in languages with a number distinction for the *unmarked* form (the plain, higher frequency) to represent the singular while the *marked* form (in which something is added) stands for the plural (Greenberg, 1966; Hyltenstam, 1987; Rutherford, 1982). Thus, in both Spanish and English, the singular ending is zero (nothing, no suffix) but the plural has a suffix or suffixes (Greenberg, 1966; Whitley, 1986).

In languages such as Spanish where there is only masculine and feminine gender, the masculine appears to be the *unmarked gender* (Greenberg, 1966:39). In this case again, the unmarked is the category which exhibits features of higher frequency or zero expression (Greenberg, 1966:33). The masculine, unmarked form predominates in the language. Epicene reference (masculine + feminine), for example, is always masculine in Spanish, e.g.,

13) *los padres, los hijos, los españoles.*
the parents, the children, the Spaniards
(Whitley, 1986)

In addition to epicene reference, the masculine form in Spanish handles: loan words (*el bar, el show*); infinitives (*el deber, el atardecer*); compounds (*el cuentagotas*); nominalized adverbials and interjections (*el sí, el mas allá*); non-agreeing participles (*ha comprado*); and augmentatives of feminines (*la silla, el sillón*) (Prado, 1982:259). Furthermore, a universal tendency in languages in which two words from two or more selective categories such as gender have a common modifier, the modifier is in the unmarked category (Greenberg, 1966:31). In Spanish, the unmarked plural form of the adjective for mixed genders is always masculine (Whitley, 1986), e.g.,

14) *el hijo y la hija* ***son buenos***
the son and the daughter are good
(Greenberg, 1966:31)

Further evidence for the unmarked status of the masculine adjective in Spanish was obtained from Bou's volume (1952) on Spanish word frequencies (in Greenberg, 1966:40). Of a total of 155,500 occurrences of adjectives, 62.7% were masculine and 37.3% feminine. The distribution is: masc. sing. 49%; fem. sing. 27.8%, masc. pl. 13.7%; fem. pl. 09.5% (Greenberg, 1966:40).

Several studies confirm the use of the default or unmarked masculine form in the acquisition of agreement features in the Spanish noun phrase. For example, Boyd (1975) found that Spanish immersion students overused the masculine form in adjective-noun cases. Andersen's (1984) study of Anthony, a 12-year-old English speaker acquiring Spanish in a naturalistic setting in Puerto Rico, showed almost exclusive use of the masculine form in most determiners and in all quantifiers and adjectives. Cain et al. (1987) studied the acquisition of Spanish gender in both English L1 adults and Spanish L1 children; results showed that scores for appropriate use of masculine articles and adjectives were significantly higher than those on feminine articles and adjectives.

In sum, the discussion above shows that the unmarked form of the adjective in Spanish is the singular, masculine form. Although some of the studies mentioned above indicate that learners use the default form in both articles and adjectives in Spanish, studies from immersion programs show that learners consistently use the default masculine form in the adjective system but not always in the article system (Boyd, 1975; Stevens, 1984). Boyd (1975:131) found that although Anglo second graders in a Spanish immersion program showed no gender preference on the article, they overused the masculine form in adjective-noun cases. Stevens (1984:106) showed that when Anglo students in French immersion classes were asked questions designed to elicit articles and qualifying adjectives, agreement was consistently missed on the adjective; students resorted almost exclusively to the masculine form of the adjective in most instances. Moreover, Plann (1979) showed that Spanish immersion learners do not appear to have problems in the acquisition of number agreement in articles but do so in the acquisition of number agreement in adjectives. Thus, since the present study was conducted in the Spanish immersion program, this investigation concentrated on the acquisition of noun-adjective agreement only. Furthermore, it is evident that when teaching and conducting research on adjective agreement in the noun phrase, it is important to consider the marked status of the plural and feminine forms.

Preferences for marked or unmarked forms might be somewhat related to the learner's preference for form or meaning. In a descriptive study, Finemann (1992) investigated the acquisition of agreement in the noun phrase by three adult beginner learners of Spanish during oral interviews. Finemann concludes that learners' behavior reflects interaction between their own preference for meaning or form and the domain which could be semantic or formal. This apparently influences their choice of marked or unmarked forms. A person with a preference for form will choose the marked form in a formal domain (feminine over masculine) and the unmarked form in semantic domain (singular over plural), while a person with a preference for meaning will choose the marked form in the semantic domain (plural over singular) and the unmarked form in the morphosyntactic domain (masculine over feminine). Although whether a person shows an inclination for the form or for the meaning may play a role in a learner's preference for marked or unmarked forms, Finemann's study needs to be considered with caution because of its extremely small number of subjects (three). More research is needed to take individual variation into account as a significant factor in experimental studies on the learner's preferences for marked or unmarked forms in the acquisition of gender and number agreement in the Spanish noun phrase.

The concept of markedness is expressed by implicational relations (Greenberg, 1966; Hyltenstam, 1987; Rutherford, 1982). Whenever the existence of a category A in a language implies the existence of a category B (A therefore B), A is considered more marked than B. For example, if a language has the category of voiced stops (A), it also has the category of voiceless stops (B). Consequently, the implied category B is more frequent among languages than the implying category A. In cross-linguistic analysis without implicational relation, categories which occur more frequently are considered unmarked and less frequently are considered marked (weak version) (Greenberg, 1966).

> ...it is the unmarked member which is the implied or basic term and the marked which is the implying or secondary (Greenberg, 1966:60).

One can infer from Greenberg (1966) that, based on implicational relations, whenever a language shows plural and feminine forms (marked), it may be assumed that it also has equivalent singular and masculine forms (unmarked).

Some researchers have suggested that grammar instruction should concentrate on the syntactically/structurally marked forms (Doughty, 1991; Eckman, et al. 1988; Gass, 1979; Harley, 1993; Zobl, 1985). Instruction which takes advantage of markedness in the input and is based on implicational relations seems to have an effect in second language acquisition. Zobl (1985), for example, investigated the acquisition of possessive adjectives by 162 French-speaking university learners of English. Zobl based his research on the projection principle he proposed (Zobl, 1983), which allows the learner to arrive at knowledge about properties in the target language not present in the input data. The study showed 1) that *his* is the unmarked member of the *his/her* pair and 2) that the categorical control of the rule governing gender marking of possessed animate human entities (his mother, her father) implies categorical control of the rule governing possessed *in*animate or nonhuman entities (her hand, his car), but not vice versa, that is, that nonhuman is the unmarked member of the human/nonhuman pair.

Zobl then ran an experiment with 20 low-level adult speakers of French who received 15 minutes of instruction in the use of English possessive forms. Instructions consisted of intensive questions and answers based on pictures, with overt correction by the teacher but no explanation of the rules. The questions were designed to elicit responses containing the possessives *his* and *her* with human and non-human entities. For example, a picture depicted a man giving a ring to a woman; the subject was asked "for whom do you think did the man buy a ring?". The subject was instructed to write down the response as quickly as possible. Pre- and posttests as well as a delayed posttest a year later were conducted. Results indicated 1) that students exposed to marked input (human examples) improved in both human and nonhuman domain, while 2) students who had received exposure only to unmarked (nonhuman) input deteriorated in that domain (first study) or improved in that domain, but less than the group exposed to marked input, and showed no improvement in the marked (human) domain. This means that students who had been exposed only to marked data improved more than those exposed to unmarked data. Results from the second study indicated that students exposed to unmarked input showed a tendency towards rule simplifications (e.g. overuse of *his*). The group receiving marked input supplied more gender-marked third person forms in new contexts, including overgeneralizations of the marked form *her*, showed less use of articles and also less avoidance strategy. Zobl concluded that exposure to unmarked data appeared to lead to rule simplification (overgeneralization of use of *his*), while exposure to marked data produced rule complexification (overgeneralization of the marked *her*). Zobl suggests that once grammars become complex, marked data become necessary for progress on unmarked and marked structures to take place. Accordingly, instruction which focuses on marked elements in the second language might have a positive effect on the rate of acquisition. It could be that the preponderance of unmarked data that naturalistic acquirers encounter might not only slow them down, but could lead to simplifications in the grammar, which, in turn, could lead to premature fossilization (Zobl, 1985).

It is important to mention that Zobl's instruction consisted of intensive questions and answers based on pictures, with overt correction by the teacher but no explanation of the rules. In addition to the learner's exposure to a marked form, acquisition might have taken place precisely because of the teacher's correction of that form. Nonetheless, Zobl's study is particularly relevant to the proposed investigation, because it has been argued that immersion learners need to be exposed to more complex language than they usually are in the classroom (Genesee, 1987; Snow et al., 1989). One way to achieve this may be through focused instruction on marked forms. For other studies confirming the effect of markedness and implicational relations see Doughty (1991), Eckman, Bell and Nelson (1988), Gass (1979), and Pavesi (1986), who conducted studies on the effect of markedness on the acquisition of relative clauses in English and its relationship to the NP Accesibility Hierarchy by Keenan and Comrie (1977).

In sum, the discussion above indicates that agreement in singular and masculine unmarked contexts may give an inflated estimate of the learner's actual agreement control since the learner may produce correct agreement by "default" (Finemann, 1992). From implicational relations and projection (Doughty, 1991; Gass, 1979; Greenberg, 1966; Zobl, 1985) it is hypothesized in the present study that instruction in the marked forms will facilitate the acquisition of these forms and, in addition, will also have an effect on the acquisition of unmarked forms. Thus, the emphasis for instruction in this study was on the marked feminine and plural forms of the adjective.

4.1.2 *Gender and number agreement*

Additionally, there seems to be a difference between the acquisition of number and that of gender in the noun phrase. Research has shown that the acquisition of number precedes, or is "easier", than that of gender both in L1 and L2 acquisition (Ervin-Tripp, 1974; Finemann, 1992; Plann, 1979; Van Naerssen, 1986). Plann (1979), for example, found that immersion students produced a higher incidence of errors in gender than in number agreement in articles and adjectives in Spanish. She assumed that this may have occurred because English-speaking learners were familiar with number agreement rules for the demonstrative articles *(these* and *those)* in English. Furthermore, number is a feature existent in the learner's L1 English nominal system, while gender is not. The hypothesis in this study, therefore, was that there would be a difference in the acquisition of number and gender agreement features, with the acquisition of number agreement rendering better results than that of gender.

4.2 *AGREEMENT IN THE VERB PHRASE*

Spanish requires that the verb inflection agree in number and person with the subject, e.g.,

15) *las muchachas*$_1$ *escuchan*$_1$ *música*,
the girls listen to music

In this example, the third person plural subject agrees with the third person plural inflection of the verb *escucha-n.*

Additionally, Spanish requires a null subject when the referent is known and is clear to the interlocutors. In that case, agreement features for person and number are evident through the inflection of the verb, e.g.,

16) *escucha**n***$_1$ *música y después se acuesta**n***$_1$
(they) listen to music and afterward go to bed

The immersion student often produces forms that are not in agreement with the subject. One form which seems to predominate in the immersion student's speech is the *unmarked* (Greenberg,1966) third person singular form (Andersen, 1986; Boyd, 1975; Cohen, 1974a). This results in idiosyncratic utterances which appear superficially well formed but are nonetheless inaccurate (Corder, 1981), e.g.,

17) *viene a clase tarde*
Literal translation: she/he comes to class late
Intended meaning: I come (or came late) late

Furthermore, as evidenced from the example above, immersion students often use null subjects in their grammar, but fail to use agreement properly (Boyd, 1975). This results again in idiosyncratic, often incomprehensible speech (Corder, 1981). Agreement features on the verb serve the function precisely of reflecting the speaker's assumption that the subject is clear in the mind of the interlocutor (Weissenrieder, 1995), an assumption often not met by the immersion students.

Although subject-verb agreement is visible at the morphological level, it functions at other levels of language as well. At the syntactic level, it helps organize the sentence by cross-relating or indexing related items. At the discourse level, it helps identify and maintain the referent's identity across discourse (Givón, 1984; Weissenrieder, 1995). Although research from French immersion has shown that learners' discourse abilities appear to be equivalent to those of the native speaker (Genesee, 1987), this is probably not the case in Spanish. While French requires the pronoun's presence at all times in the sentence, Spanish allows for the subject pronoun's absence (pro-drop) when the referent is known from the discourse. French discourse, therefore, is not critically dependent on accurate morphological expression of subject-verb agreement on the verb, while Spanish is. To my knowledge, there is no study in Spanish immersion programs that has investigated the relationship between discourse performance and use of morphological subject-verb agreement. One could argue from research in French immersion, which showed that lack of grammatical accuracy affects the learner's sociolinguistic skills (Lyster, 1994; Swain, 1985), that such a lack would also affect the learner's discourse skills in Spanish in the case when there is a null subject used with inaccurate morphology on the verb (see example above). FonF instruction on subject-verb agreement, therefore, might be particularly important in Spanish immersion programs.

Empirical studies show that the immersion learner substitutes the unmarked third person singular form for all other forms (Andersen, 1986; Boyd, 1975; Plann, 1979). In the Culver City immersion program (Cohen, 1974a), for example, subjects seemed to ignore the forms, relying instead on the context to supply the meaning (Cohen, 1974a).

Based on the earlier discussion on implicational relations and on the preponderance of the unmarked third person singular form in the immersion learner's language, the present study concentrated on the instruction of the marked forms such as first or second person singular and plural, which from my own observation do not appear as frequently as the third person and imperative forms in the elementary immersion textbooks and in the classroom language. However, testing included both marked and unmarked forms.

4.3 *SALIENCY AND COMMUNICATIVE VALUE*

Agreement features in the noun phrase and in the verb phrase are not perceptually salient (Slobin, 1979). However, person and number morphology in the verb phrase is considered "meaningful morphology" and has, therefore, high communicative value. Adjective and determiner number and gender morphology in the noun phrase, on the other hand, are considered to be low in communicative value; they do not have inherent semantic value, and are redundant as they spread over the whole noun phrase (VanPatten, in press), e.g.,

18) *las casas blancas* (VanPatten, in press).

The hypothesis in this study, therefore, was that the acquisition of "meaningful morphology" (verb phrase) will yield better results than the acquisition of "less-meaningful" or redundant morphology, especially that of adjectival gender.

4.4 *PROCESSES INVOLVED IN THE ACQUISITION OF AGREEMENT FEATURES*

The acquisition of redundant grammatical agreement in second language acquisition theory has been analyzed from different points of view. The first theory, the Functional Hypothesis, predicts deletion of redundant features in early stages of acquisition as a process of simplification for efficiency's sake (Littlewood, 1981; Young, 1993). Littlewood (1981) argues that a linguistic feature is more likely to be omitted when it is redundant to the meaning being conveyed, and more likely to be produced when it transmits necessary information. Redundant items, according to Littlewood, will be omitted in language production for efficiency's sake, especially in earlier stages of acquisition. Thus, the learner will supply concorded elements less often, since they are redundant. In an empirical study on morphological interlanguage variation, however, Young (1993) obtained mixed evidence for this. In a Chinese group of learners of English, Young found that plural marking of numerals strongly favored a concorded plural affix on the noun (three houses), whereas plural marking of quantifiers inhibited -*s* use (some house). Thus, it is difficult to determine whether redundant features in Spanish will necessarily be omitted for efficiency's sake only.

The second argument concerning redundant features is the "priming hypothesis" in which the initial processing of a language item (noun) may facilitate the processing of a subsequent related item (adjective) if there are sufficient attentional resources available (Mellow and Cumming, 1994). The researchers argue that repeated indicators of grammatical information can remind or assist the learner to use grammatical morphemes to structure their communication. Furthermore, they believe that, usually, the learner does not have enough time for processing the input, but in production tasks, especially written composition tasks, the learner has time for allocating attentional resources to process the grammatical affixes once there is a priming element present. In an experimental study in which ESL compositions by Japanese and French speakers were analyzed for the presence of plural -*s*, target language use (TLU) means showed that, for both the French and the Japanese subjects, for both higher and lower proficiency learners and on all tasks, the plural *-s* was used more accurately when it was concorded than when it was not concorded (Mellow and Cumming, 1994). The researchers warn, though, that the same results might not apply to languages like Spanish where agreement spreads over the entire noun phrase (Mellow and Cumming, 1994). Nevertheless, based on the possible effect of the "priming hypothesis" and on the fact that the adjective in Spanish for the most part follows the noun, the present investigation concentrated on noun-adjective agreement and disregarded agreement of determiners, which might not be subject to any "priming" processes. Two of the instruments for testing in the present study that facilitated the production of noun-adjective and subject-verb agreement by priming the learner with specific nouns (item test) and pronouns (puzzle) were the oral question/answer item test and the written puzzle test. The other two production tasks (oral tree and written seed) encouraged the learners to describe a tree and a growing plant with nouns (such as leaves, seed, branches, fruit, etc.) which acted as primes for the subsequent adjectives (see sections 5.3.2 and 5.3.3 for a discussion of these tests and the appendix for sample tests).

A third approach by VanPatten (in press) claims that the meaningful items compete with grammatical items such as affixes, and when the two are present, the learner interprets the meaning of the utterance from the lexical item and not the affix. Mellow and Cumming (1994) propose, instead, that the lexical item primes the affix to appear and, consequently, facilitates the processing of the affix. Although for experimental reasons (so as not to confound the variable) learners in the present study did not receive feedback on their written tasks, if Mellow and Cumming are right, it was expected that learners would benefit from the priming effect to produce some accurate target forms in their written work even in the absence of written feedback. However, as Mellow and Cumming warn, their theory might not apply to the Spanish noun phrase. Furthermore, VanPatten's theory, that learners process meaningful morphology and lexical items before non-meaningful morphology and that the two compete for the learner's attention, does not really contradict Mellow and Cumming's priming effect, since the first relates to processing of the input in all circumstances, while the second relates primarily to processing during production tasks.

Finally, since the present study involves the acquisition of Spanish gender agreement features by English-speaking children, it is relevant to mention the proposed processes involved in the acquisition of this feature by L1 Spanish-speaking children. An experiment with 160 Spanish children (Pérez-Pereira, 1991) from four to eleven years of age tested three different possible clues, semantic, morpho-phonological and syntactic, used by children to determine the gender of a noun and its agreement with other items in the noun phrase. Children were shown pictures of imaginary beings, animals or things where only one of the clues was present, pictures where there was a combined effect of two clues with the same gender and pictures where there was conflict of clues (one masculine and the other feminine). Children were asked questions designed to elicit an adjective which would indicate to the researcher whether the noun had been interpreted as masculine or feminine. Results indicated that children rely predominantly on intralinguistic syntactic (grammatical gender) and morpho-phonological (word-endings) clues rather than on extralinguistic clues such as sexual-semantic features attributed to the noun. Additionally, regarding the importance of clues, it appears that as children grow older, they pay more attention to syntactic clues. This is especially important in gender agreement with nouns which have a gender different from the grammatical gender assumed from the surface forms, such as *la flor* (flower), or *el programa* (the program), for example. Furthermore, children seem to have acquired gender marking in nouns and gender agreement before the age of four. If we assume that children in immersion programs follow some of the L1 processes of acquisition because of their immersion in the language from an early age on (Stevens, 1984), then we would expect them to apply syntactic processing in their acquisition of gender agreement in Spanish. However, research has shown that immersion learners are concerned with communicating at all costs without paying attention to syntax. Thus, following Swain (1985), the aim is to push the immersion learner to process form in addition to meaning.

4.5 *SUMMARY*

The target of instruction was the morphosyntactic form of agreement in Spanish. The acquisition of both subject-verb (S-V) and noun-adjective agreement (gender and number) (N-A) was investigated. Because the noun in the Spanish noun phrase agrees with its modifiers and determiners in gender as well as in number, agreement on these forms carries little communicative value. On the other hand, Spanish is a pro-drop language with rich inflectional morphology, thus agreement between subject and verb is crucial not only in production, but also in comprehension of discourse. Research indicates that both S-V and N-A agreement are a persistent problem in the immersion learners' language at all levels of the elementary grades. While L1 children appear to process Spanish gender agreement syntactically by age four, L2 immersion students process these forms semantically because they are primarily concerned with getting their message across. The goal of FonF instruction, then, would be to help the immersion learner process agreement forms syntactically as well as semantically. Immersion learners use default, unmarked forms for S-V (third person singular) as well as for N-A agreement (singular masculine) in most contexts where agreement is required. The aim of FonF instruction, then, would be to help the immersion learner notice the more marked agreement forms in the input and in their own output.

NOTES TO CHAPTER 4

1. Harley (1994) cautions, though, that the fact that there are individual differences among the learners suggests that some learners are more skillful than others at dividing their attention between meaning and form.

INTEGRATING LANGUAGE AND CONTENT IN AN EXPERIENTIAL SETTING: FOCUS-ON-FORM IN THE SPANISH PARTIAL IMMERSION PROGRAM

VOLUME TWO OF TWO

A Dissertation
submitted to the Faculty of the
Graduate School of Arts and Sciences
of Georgetown University
in partial fulfillment of the requirements for the
degree of
Doctor of Philosophy
in Linguistics

By

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Washington, D.C.
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GRADUATE SCHOOL OF ARTS AND SCIENCES

The doctoral dissertation/~~master's thesis~~ of Miriam Stein entitled Integrating Language and Content in an Experiential Setting: ~~FONF~~ Focus-on-form in the Spanish Partial Immersion Program

submitted to the department/~~program~~ of Linguistics in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Graduate School of Georgetown University has been read and approved by the Committee:

Catherine Doughty, Ph.D.

Andrea Tyler

Department Chair/Program Director

April 2, 1998
Date

This dissertation/~~thesis~~ has been accepted by the Graduate School of Arts and Sciences.

4/6/98
Date

For the Dean

CHAPTER 5

THE PROCEDURE

5.0 *INTRODUCTION*

The present study's aim was to investigate the effect of FonF instruction on the partial immersion learner's developing system with respect to agreement features in Spanish. Specifically, the effect of implicit and incidental corrective feedback in the form of a recast was tested on the acquisition of Spanish subject-verb and noun-adjective agreement features. Thus, two experimental groups (fourth grade), which received special instruction, were compared to two comparison groups (fifth grade) without instruction. Additionally, the two experimental groups (morning and afternoon) were compared to each other. A total of 63 subjects participated in this research. Each group consisted of about half native speakers and half non-native speakers of Spanish. Except for a few, most native speakers were second- generation native speakers of Spanish, that is, they were born in the U.S. but speak Spanish at home with one or both parents. The groups were analyzed separately for English L1 speakers (NNS) and Spanish L1 speakers (NS). In order to test both short-and long-term effects of instruction in written as well as oral ability in all four groups, this investigation followed a pretest, posttest and delayed posttest design. The tests and implicit feedback technique were piloted in another immersion class (third grade) in the same school.

Quantitative analyses were carried out comparing the two experimental groups with each other and with the comparison groups at three different testing times. A quantitative analysis of the approximate amount of feedback provided by the teacher, obtained from class recordings, was also carried out. Qualitative analyses of the feedback and of the students' responses to the feedback and to the tests were also carried out. These analyses are included when relevant to the overall discussion.

5.1 *THE PILOT STUDY*

Piloting, which lasted for three weeks, took place in the third grade partial immersion class. Since this class was not divided into two sections of morning and afternoon classes, feedback was provided on all the target features at the same time for two weeks during science class in Spanish. Of the 24 subjects, 15 students were either of Hispanic origin or speak or have spoken Spanish at home with a caretaker such as a nanny. The pretests indicated that there appeared to be variability among these students in their degree of accuracy and fluency when speaking Spanish. The rest of the students in the pilot study were all native English speakers who appeared to lack accuracy when producing or interpreting the target features in Spanish. The teacher was a native English speaker, fluent in Spanish. The students took English language arts, music, physical education and social studies in English in the morning, and science, math and Spanish language arts in Spanish in the afternoon. Except for music and PE, the same teacher taught all English and Spanish subjects (this arrangement is unusual in immersion programs, where it is more common to divide the languages between different teachers).

All tests used in the present study were piloted. Additionally, a written production test (question/item), similar to the oral question/item test was also piloted. The order of the tests was reversed from the pretest to the posttest. Also, since the tests were only two weeks apart, in order to avoid practice effect the different parts of the oral test were reversed from the pretest to the posttest, i.e, learners in the oral pretest were first asked questions about their mini-experiment conducted in class, and then had to talk about their life as a tree, while in the posttest they started by describing their life as a tree and were asked questions afterward.

Feedback in the pilot study was somewhat different from the feedback given in the present study. The feedback in the pilot study consisted of a recast, followed by a tag question, then followed by a teacher's repetition of the target form, e.g.,

19) S: *mi fruta favorita es la pera* ***amarillo***
my favorite fruit is the yellow pear
(masc.)

T: *la pera* ***amarilla****, ¿no?*
the yellow pear (fem.)

T: ***amarilla***
yellow (fem.)

All pilot treatment sessions were audio-taped. The pilot recordings show that students at times repeated the form after the tag if the teacher waited and did not repeat the form immediately herself. Some students also repeated the form after the teacher's repetition. Therefore, in order to prevent the learner from producing any output, and in order to ensure that the feedback provided was only of the **implicit** kind, the *present study* used feedback in the form of a recast, followed by a tag only, *without the repetition of the target form.* The teacher was advised to continue immediately with the content discussion, so as to ensure that the student produced no output.

In order to find out whether students spoke English or Spanish at home, students filled out a questionnaire about their speaking habits at home. Additionally, in order to find out how the teacher felt about the feedback and how the students reacted to it, the teacher was orally debriefed by the researcher after the treatment sessions. The pilot teacher reported that it was easy to provide the feedback and that some students were beginning to notice it. She gave the example of a student who habitually said *estoy terminado* (I am finished) instead of the correct *terminé* (I finished) form, and who, after repeated feedback, now says *terminé* instead. Finally, in order to develop a coding system, some of the oral test data from the pilot study were transcribed and a few samples of each of the tests were coded.

The main contribution of the pilot was that it allowed the researcher to test the materials and the procedures. In view of the fact that children seemed a little bored with having the same format for the oral and written/item test (see appendix), the researcher decided to change the format of the written item test to the puzzle (see section 5.4.2.a). Instead of answering questions about a mini-experiment that were prompted by a pronoun (see section 5.4.3.a), students in the present study had to write an essay about the same experiment, making sure they used certain words which were provided for them (see appendix). The puzzle test was also successfully piloted in the third grade.

The aural processing test in the pilot study was originally somewhat different from the one administered in the present study. Students in the pilot class listened to a sentence related to the unit about plants and had to chose from three options to indicate that they had interpreted the utterance correctly. Students had to answer the questions of what? or who? For example, if the utterance was: *están pegados a la piel del oso* (they are stuck to the bear's fur), the choices were a) *la hoja* (the leaf), b) *los frutos* (the fruit) or c) *las semillas* (the seeds). While from the semantic point of view all three answers were correct, the only correct answer from a linguistic point of view was *los frutos* (the fruit, masculine, plural), which agrees with the participial adjective *pegados* (stuck, masculine, plural). The aural processing test was modified into a more open-ended type of test in the present study (see section 5.4.1), because the multiple choice format from the pilot test appeared too discrete. Additionally, the pilot test had many vocabulary words which had to be explained to the students by the researcher, because the students had never heard them (six in total). The aural test used in the present study contains less unfamiliar words (two).

The riddle test (see section 5.4.2c) remained the same in format in the present study as in the pilot study, because the children in the pilot study seemed to enjoy the task. However, three out of the five items to be described were changed in the present study, because many students in the pilot study used the color green, which in Spanish is neutral for gender, to describe the fruits.

The questions on the oral item test (see section 5.4.3.a) were not taped in advance for the pilot study. As a result, the researcher didn't always allow enough time for the students to answer; additionally, the researcher found that sometimes she forgot to use the prompt. To ensure uniformity, therefore, the questions in the present study were taped in advance. This allowed the researcher to always pay attention to the prompt and to allot equal time for answering the questions, plus it eliminated variability between testing times. Additionally, the pilot indicated that students were shy at first about speaking into tape recorders. In the present study, therefore, the researcher allowed for an initial warm-up session during which the students were asked personal questions, such as how old they were, how many siblings they had, etc. Furthermore, the oral item pilot test showed what items the students found difficult to understand. In particular, on item number 4 (see appendix) students did not understand that the task required them to ask a question. In the present study, the students were instructed to ask the question to their classmate, which solved the difficulty.

5.2 *THE EXPERIMENTAL GROUPS*

The two treatment groups consisted of the two fourth-grade intact classes (morning and afternoon), and the no-instruction groups consisted of two fifth-grade intact classes (morning and afternoon). The grammatical feature (subject-verb or noun-adjective agreement) used as treatment in the experimental classes was randomly chosen with the flip of a coin. The experimental morning group (F1) received feedback on subject-verb agreement (S-V) features and the experimental afternoon group (F2) received feedback on noun-adjective (N-A) gender and number agreement. Each experimental group served as a control for the other on the feature not being instructed in that group, i.e., the F1 Group served as a control in N-A gender and number agreement for the F2 Group and the latter served as a control for the F1 Group in subject-verb agreement (S-V).

There were two comparison groups which received no FonF instruction, i.e., no feedback at all (NF1 and NF2). In order to avoid introducing a variable related to time of testing, i.e., morning or afternoon, the target feature used for comparison in the control groups was based on the randomly assigned treatment in the experimental groups. That is, the comparison group in the morning was analyzed for subject-verb agreement (S-V) and the afternoon class was analyzed for noun-adjective agreement (N-A), similar to the experimental classes.

Thus, the comparison was among three groups according to instruction: F1 Group, F2 Group and NF1 Group for subject-verb agreement; similarly, F1 Group, F2 Group and NF2 Group for noun-adjective agreement. The following tables illustrate the distribution of the groups and the comparison among the groups.

FIGURE 4: GROUP DISTRIBUTION

TREATMENT GROUPS (RECASTS)	COMPARISON GROUPS
F1 GROUP (morning 4th) subject-verb agreement	*NF1 GROUP* (morning 5th) no-instruction
F2 GROUP (afternoon 4th) adjective agreement (gender and number)	*NF2 GROUP* (afternoon 5th) no-instruction

FIGURE 5: GROUP COMPARISON

TARGET FORMS	INSTRUCTION GROUPS	INSTRUCTED CONTROL GROUPS	NO-INSTRUCTION GROUPS
S-V	F1 (morning 4th)	F2 (afternoon 4th)	NF1 (morning 5th)
N-A (G/N)	F2 (afternoon 4th)	F1 (morning 4th)	NF2 (afternoon 5th)

S-V = subject-verb agreement
N-A = noun-adjective agreement
G/N = gender/number

5.3 *RESEARCH SITE, SUBJECTS AND TEACHER*

Sixty-three subjects[1] from an elementary two-way partial immersion program, where learners are exposed to instruction in English for half a day and Spanish for half a day (50%), participated in this study. Given that this is a two-way program with two distinct populations in one classroom, the subjects were divided into English speakers (NNS) and Spanish native speakers (NS) for the purpose of analysis only but not during the treatment or testing phase. The information used for this division stemmed from a questionnaire given to each student (see appendix) which posed questions about the student's speaking habits at home. The learner was considered to be part of the native speaker's group if: 1) at least one of the learner's parents came from a Spanish-speaking country, and 2) the learner regularly spoke Spanish with that parent at home. Most of the native speakers were second-generation speakers of Spanish, born in the U.S. That is, they spoke Spanish at home, but English outside the home. The countries of origin for these children's parents are: Bolivia, El Salvador, Ecuador, Colombia, Nicaragua, Argentina and Cuba. Additionally, a few NSs were born in a Spanish-speaking country: two in Group F1, four in Group F2, four in Group NF1 and two in Group NF2. The Spanish-speaking countries represented in these groups were Bolivia, El Salvador, Perú, Argentina and Cuba.

The learners' socio-economic class ranged from middle to lower-middle class. Some came from homes where the parents are professionals, while others came from homes where the parents have only reached elementary grade education. The subjects in all four groups ranged from ten to twelve years of age. Letters of authorization to allow the child's participation in the study were sent to all the parents one month before the beginning of the experiment (see samples in the appendix).

The following table illustrates the number of subjects for NSs and NNSs of Spanish in each group:

FIGURE 6: NUMBER OF SUBJECTS PER GROUP

GROUPS	NNS	NS
F1 Group EXPERIMENTAL	10	8
F2 Group EXPERIMENTAL	7	10
NF1 Group COMPARISON	11	6
NF2 Group COMPARISON	7	4

NNS = Non-native speakers of Spanish
NS = Native speakers of Spanish (born in the US+ foreign born)

The teacher in the experimental groups was highly regarded by students, parents and administrators. She was a bilingual second-generation native speaker of Spanish, who grew up in France. Her knowledge of Spanish was good but lacked accuracy in some grammatical areas, such as in the correct use of the subjunctive forms. Her knowledge of adjectival gender agreement was, for the most part, although not always, accurate. This teacher (Teacher A) taught three academic subjects in Spanish (Language Arts, Mathematics and Science) to the two experimental groups. Teacher A had taught the comparison group children when they had been in the fourth grade during the previous year. The teacher in the comparison group, at the time of this research, was a native speaker from Puerto Rico who had lived in the U.S. for most of her adult life.

5.3.1 *The experimental classes*

Since the recast was provided during science class, it is useful to discuss how a lesson proceeded in that class. The children in the experimental fourth-grade science classes were seated in groups of four. All the instruction in the subject-matter was conducted in Spanish, and the students were instructed to interact among themselves and with the teacher in Spanish. For the most part this was the case, although students sometimes tended to switch to English when the teacher was not watching or listening. Each group of four children consisted of native speakers and non-native speakers of Spanish.

The teacher generally introduced a new science topic by giving a brief introduction and by asking students questions and eliciting responses. This was generally followed by a project or task to be conducted by each group of four students. Sometimes these projects consisted of small experiments, which the students conducted in order to test a hypothesis, and which they then presented orally to the class. Other times students were asked to arrive at generalizations from assigned readings in class, these were also reported orally to the class. The teacher moved from group to group giving the students subject-matter feedback while they worked on their projects. During the course of the present study, the teacher's feedback included recasts on S-V and N-A agreement.

5.3.2 *Language instruction in the experimental classes*

Although formally there was a subject-matter called Language Arts, in reality the teacher had very little time to dwell on it. Students sometimes were instructed to read a story at the end of the class. The teacher corrected language errors from written assignments by writing the correct form over the error; the learner then was supposed to write a new draft with the corrected error. Oral feedback on errors prior to the FonF experiment was occasional and inconsistent. Students received some feedback on subject-verb agreement[2], tense, on the *gustar* (to like) forms and on *ser/estar* (to be) errors. They were never corrected on N-A agreement errors, the use of the subjunctive, preterite/imperfect forms, personal *a*, or on the differences between the formal and informal uses of *Ud*. and *tú*. The teacher's occasional feedback consisted mostly of a direct correction of the inaccurate utterance, which was followed at times by the student's repetition of the correct utterance; often though, the student appeared not to notice the correction at all.

20) S: *yo piensa*
(he/she thinks, meaning I think)

T: *yo pienso*
I think (first person)

Explicit language instruction, such as explanation of a grammatical form or discussion about a grammatical form, was not provided in the classroom. Other language instructional techniques, such as input enhancement or input processing, were not practiced either. The teacher sometimes explicitly explained difficult vocabulary items. On the whole, though, language was never the focus of instruction; it always remained incidental to instruction in the content matter.

5.3.3 *Sociolinguistic component*

For the most part, the immersion students in the school where this research took place spoke English among themselves when not instructed to speak in Spanish. The teacher in the experimental groups was strict about enforcing the "Spanish only" rule. However, when children worked in unsupervised group conditions, they often switched to English. In the hallways, children spoke English at all times. Native speakers of Spanish for the most part also spoke English among themselves and with others in the hallways.

From debriefing a group of six elementary immersion teachers, it was apparent that L1 English speaking children prefer to speak English because it is easier; L1 Spanish speakers prefer to speak English because it is a survival tool for them not only in the school, but mostly on the outside. Teachers explained that NS children are very eager to improve in their English ability as quickly as possible (many take ESL classes) in order to be part of the society at large. From a sociolinguistic point of view, it appears that English is the "prestige" language among immersion learners of all backgrounds. The teachers did not think, however, that there was a prestige immersion dialect over a standard dialect of Spanish in the immersion classroom. In other words, teachers did not think that students from L1 Spanish background prefer to speak Spanish as spoken by L1 English speakers (with grammatical errors). However, it is apparent from the researcher's own observation and from some teachers' comments, that there is a wide range of Spanish proficiency among the Spanish native-speaking students. This probably is related to the degree of dominance in Spanish (Valdés, 1995) that these children bring to the classroom.

Additionally, the questionnaire given to all the students in the study reveals that, for the most part, students also enjoy speaking Spanish. All but 7 students answered with a positive response to the question of *do you like to speak Spanish, and why?* Out of the seven who did not answer affirmatively, only one student answered with a categorical "no"; the other six responses indicated mixed feelings on the part of the learner: "a little; so, so; sometimes; has good and bad sides to it". The main reasons why students (NS and NNS) liked to speak Spanish were (two or more cases for each):

- *so I can speak another language*
- *it's fun*
- *to be bilingual*
- *it's interesting*
- *it's my native language (NSs)*

- *it's important*
- *I can speak with my parents (NSs)*
- *I can communicate with Hispanic people who do not speak English*
- *I can understand other people's conversations*
- *will help get a job*

Other responses (one case for each)

- *it is interesting to speak another language and generally the other people do not understand, only my friends, you, and my teacher*
- *it is the first language I learned (NS)*
- *I get confidence from speaking Spanish, many people do not speak Spanish*
- *I don't want to forget my Spanish (NS)*
- *I can communicate in a Spanish speaking country*
- *learn new words*

The responses above indicate that NSs as well as NNSs have a very positive attitude about speaking Spanish. Even when outside of class English is the dominant "prestige language", learners in the experimental classes consider knowing how to speak Spanish important, fun and interesting.

5.4 *PRETESTING*

The experimental groups were pretested on their knowledge of adjectival and subject-verb agreement in Spanish. The pretest consisted of five tasks conducted during science class (see appendix for sample tasks). The tests related primarily to the learning about plants, which was the portion of science instruction scheduled in the experimental classes for the time that the experiment took place. In order to test for transfer of knowledge to new contexts, however, learners were also tested in some unseen contexts, where they were asked to use adjectives and verbs that would still be new to them[3]. Given the experiential, content-based environment in which this experiment was conducted, all the tests were of a communicative rather than a discrete point nature. As a result, the learners believed they were engaging in activities which were related to their science class rather than activities designed to measure their language ability. In fact, at no time was the purpose of the study revealed to the students. Pretesting was done for three days in all four groups on Tuesday, Wednesday and Thursday in the experimental groups and on Tuesday, Wednesday and Friday in the comparison groups. The groups were tested separately but received the same tests in the morning and the afternoon each day of testing. Two tests were administered every time. The order of the tests was the following:

Tuesday: aural processing test and written productive word puzzle test.

Wednesday: written productive riddle test and seed test.

Thursday (experimental classes): oral tests.

Friday (comparison classes): oral tests.

A description of the tests administered follows.

5.4.1 *Aural listening-comprehension processing test (processing meaning and form)*

This test targeted processing of subject-verb as well as noun-adjective agreement from a meaningful aural text. Students were instructed to listen to a Spanish text read aloud by the researcher. They were asked to answer (in writing) the question about what or whom they could associate with each idea heard. All the questions were related to the unit on plants. This was a test where the learner had several possibilities for an answer in each case. The nature of this test never required the learners to write the target forms of verbs or adjectives. Rather, the response was always a noun (person, animal or thing) which indicated that the item heard had been correctly interpreted, both semantically and syntactically, to agree with the noun or subject. Thus, in order to arrive at a correct answer the learner had to process form and meaning simultaneously. If the learner processed the information based solely on meaning, then the answer could have still held true only if one would have disregarded the language portion of the question; however, in order to answer the question accurately from a *content and language point of view*, the learner had to pay attention to both meaning and form. In that respect the test satisfied Loschky and Bley-Vroman's (1993) criteria for task essentialness.

For example, if the question was, *absorbe agua y minerales y generalmente es larga*, ¿qué? (absorbs water and minerals and is generally long (**fem**.), what?) the answer from the content point of view alone could be *el tallo* (the stem, **masc**.) or *la raíz* (the root, **fem**.), but from an integrated point of view (content and language), the only accurate answer would have to be the feminine noun *raíz*. The learner could have instead responded with *la hoja* (the leaf, **fem.**) and this would be an acceptable answer also. Most of the questions allowed for more than one integrated option for an answer.

There was a total of 10 items on this test; five tested interpretation of S-V agreement in obligatory contexts and five tested interpretation of N-A agreement in obligatory contexts (3 feminine, 2 masculine, 3 plural and 2 singular). The subject-verb agreement items acted as distractors for the gender/number agreement items and vice versa.

This test was administered to six educated adult native speakers of Spanish from Perú who have lived in the U.S. for at least ten years (all had at least four years of college). Their ages ranged from forty to fifty-five years of age. Two were females and four were males. All of these subjects heard the text read to them over the phone twice, and then wrote down the answer. The written answers were read to the researcher over the phone and were copied by the researcher on an answer sheet. None of the subjects was aware of the nature of the test before taking it. The results showed that one subject interpreted item number two (see appendix) for meaning only, rather than for meaning and form (S-V), and that one of the subjects answered item number eight (S-V) incorrectly. During the subjects' debriefing, the subject who had missed this item explained that he had heard *comen* (they eat) rather than *como* (I eat), which means that he was aware of S-V agreement and most likely would have provided the correct answer had he heard the correct ending of the verb. From a total of sixty items, only two were missed by native speakers. One can conclude from these results that adult native speakers took the aural processing test without difficulty.

5.4.2 Written production tests

a) PUZZLE

This test targeted knowledge of subject-verb agreement. Students were asked to solve a word puzzle which consisted of key words related to an experiment previously conducted in science class. The test targeted the processing of agreement between subject and verb while engaging in meaningful communication. Students had to report in an essay about the experiment of a celery stalk which absorbs colored water and then changes its colors accordingly. Although the students had to use *all* the words in the puzzle (10), they were allowed to add as many words as they wished in order to complete the task. Some of the key words were directly related to words necessary for reporting on the science experiment. Other words, however, required the student to use different persons or pronouns, which encouraged the students to use subjects and verbs to indicate different actions being performed. In that sense, the student was required to come up with novel utterances.

Additionally, the task forced the student to use the target forms (task essentialness, [Loschky and Bley-Vroman, 1993]) at the same time that he/she concentrated on producing meaningful utterances. If students followed the instructions given by the researcher and used all the words in the puzzle, then they had five obligatory contexts to produce the target S-V agreement form.

This task was executed in two steps; students first wrote a draft of the essay which was then followed by the final version of the essay. Although the researcher collected both versions, only the final one was coded and analyzed. The students believed they were engaged in a "writing process" exercise during science class, not too different from others that the teacher had assigned in the past. The reason for having the students write two drafts was to allow the students to organize their ideas. Many were concerned with using all the words at first, without really describing the experiment in sequential order. Others were concerned about describing the experiment, but needed to incorporate all the words into their draft. The second draft allowed the students to meet both requirements, tell about their experiment in sequential order, and use all the words provided for the task. Because these students were not focused on grammatical form, it does not appear that the second draft was used by the students to improve on their accuracy of the target feature (S-V) in any way.

b) WRITTEN RIDDLE (ADIVINANZA)

This task tested noun-adjective agreement. Students were provided with the name of several fruits and they had to write a riddle for each one. This activity forced the student to describe these fruits. To avoid vocabulary problems, the fruits were shown to the class in a colorful poster. The test encouraged the student to talk about something new, since fruits were not really the topic of discussion in class, but were closely related to the topic of plant development so as not to seem out of context to the student. Additionally, the task forced the student to use the target form (task essentialness), because the task asked the student to write a riddle about a particular fruit. Sometimes, the student added information, such as "it is used in fruit salads". However, that statement by itself would not have met the task requirement, which was to write a riddle about one fruit in particular. In order to write the riddle, the student was forced to give some characteristics about the fruit in question, which meant using an adjective, and consequently, using the N-A agreement target feature. This task was originally intended to test both adjectival gender and number agreement. Unfortunately though, during analysis it was discovered that the task presented a problem for number analysis[4]; therefore, this test was only used to measure adjectival gender agreement. There were at least five obligatory contexts (students were encouraged to provide more than one adjective) for gender agreement of which three were feminine and two were masculine.

c) WRITTEN SEED (SEMILLA)

This task measured both noun-adjective agreement and subject-verb agreement. Students had to pretend they were a seed and were asked to write a paragraph describing their development into a plant. They were encouraged to take into account how they grew, who took care of them, how they dispersed, what type of plant they would be, what the function of each of his/her parts was, etc. Some of the vocabulary had been used previously in class, but the fact that the students had to use their imagination and write in the first person was a novel situation for them. This task satisfied Loschky and Bley-Vroman's (1993) condition of task naturalness, because, while the task encouraged the students to use the target features, the task could still be completed if the students did not use these features.

5.4.3 Oral production tests

Two oral production tests were given in succession:

a) QUESTION-AND-ANSWER ITEM TEST

In the first part of this test the student was asked to report on the experiment, previously conducted in class, about a celery stalk. The student was guided with questions, and, through the first half of that section, the student was prompted to answer the questions by starting his/her response with a certain word, usually a pronoun. The purpose of this was to encourage the learner to reply with complete sentences at all times which, in turn, made testing of the learner's knowledge of subject-verb agreement possible (task essentialness). For example, if the learner was asked, *¿qué pusieron Uds. en el vaso?* (what did you (plural) put into the cup?), the learner was prompted to answer by starting the sentence with the pronoun NOSOTROS (WE)[5]. This portion of the test provided six obligatory contexts and four possible contexts for S-V agreement. This part also included four possible obligatory contexts for gender and number provided students responded to the questions they were asked. Some of the verbs that were used in the questions were new to the student (see note 3); this ensured the use of new contexts in addition to the familiar contexts.

In the second part of the question-and-answer task, the students continued to answer questions about the experiment, this time with questions designed to elicit noun-adjective agreement and they did not include a prompt. This section contained at least five obligatory contexts for each N-A gender and number agreement: three feminine, three plural, one masculine and one singular.

In the third section, learners were asked to describe some fruits, which they could see on a poster; they were also asked what they liked or disliked about each fruit. This part of the test targeted primarily the learner's knowledge of noun-adjective agreement for gender and number. In addition, the task forced the learner to use adjectives in order to answer the question *¿cómo es la toronja?* (what is the grapefruit like?), for example. While this portion of the task satisfied the condition of task essentialness, because that question could not be answered without describing the fruit in some way, the second half of the question, *¿y por qué te gusta o no te gusta?* (and why do you like it or not like it?) satisfied the condition of task naturalness. The topic of fruits was novel for the students but related to the science class topic of plants, so as to appear natural enough. In order to create new contexts, students were asked to choose from a given list of less common adjectives when describing these fruits. This portion of the test provided five obligatory contexts for each gender and number: three feminine, two masculine, three plural and two singular. Students were instructed to provide two adjectives per fruit, which ideally would have provided ten obligatory contexts, but not everyone followed these instructions.

b) ORAL TREE (ARBOL)

In the oral tree test, the student was shown four pictures of a tree which changed according to the four seasons. The student was told that he/she was the tree and was asked to tell the story of his/her life according to the four seasons. This task tested knowledge of both subject-verb and noun-adjective agreement. This was a totally new task for the students, and yet it was related enough to the topic of plants to appear to be a natural task within the context of a science class (task naturalness). The open-ended nature of the test did not specifically provide for obligatory contexts, although it encouraged the learners to use the first person pronoun and to describe the tree, which provided contexts for S-V and N-A agreement.

All the students participating in the experiment took part in the oral tests. The oral production tasks were recorded and the data were transcribed. For uniformity, five to six students were interviewed at the same time in a large room where they could not easily overhear each other's responses. Each student held his/her own recorder. Previously taped questions were addressed to all the students in the room at the same time. The learner was familiarized to the oral interview by first being asked personal questions such as his/her name, number and name of siblings, etc. The pilot study had indicated that these preliminary personal questions were necessary in order to get the students familiarized with the test and with talking into a recorder.

Although the order of the tests was reversed from pretest to posttest in the pilot study, it was not reversed in the real study. One reason for this was the fact that treatment spanned six weeks in the real study as compared to two weeks in the pilot study. This span would eliminate possible practice effect from taking the tests in the same order. Furthermore, the researcher noticed that students in the real study seemed to have some difficulty with the task in the aural processing pretest, which was administered first. This prompted the researcher to maintain exactly the same conditions in the remaining tests. It could be that the test administered first presented more difficulty to the students by virtue of being the first, and it would have been inconsistent to change the order later. In this way, the conditions for difficulty based on the order of the tests were always the same. Additionally, in order to avoid attrition, it became apparent during the pretest session that it was important to follow the same schedule for testing every time. In order to obtain full student participation and teacher cooperation, many factors had to be taken into account, such as the children's special classes of physical education, computer classes, pull-out music lessons, theater groups regularly performing in the classroom, etc. The best days for giving the oral tests, for example, were Thursdays and Fridays. These tests took a whole day for each of the groups (experimental and comparison). Furthermore, as these tests were relatively disruptive to the class flow, (each time groups of six or seven students were pulled out for half an hour), it became apparent that it was easier on the teacher for planning purposes to keep the same schedule for pre-, post- and delayed posttest activities. Additionally, the very open-ended nature of the written tests, especially that of Semilla and Puzzle, required that students take these after the more structured tests (Adivinanza and Aural), because some students took longer than others to finish writing their compositions on these tests. In short, the very nature of intact classes, with so many special classes and activities in the classroom, dictated that once the order of the tests was established as optimal for student participation, it became apparent that keeping that order and the assigned days for administering them was very important for the teacher as well as for the researcher. The circumstances described above, therefore, virtually eliminated the possibility of counter-balancing the order of the tests.

The following table summarizes the different tests:

FIGURE 7: TESTS

TEST	NOUN-ADJECTIVE GENDER AGR	NOUN-ADJECTIVE NUMBER AGR	SUBJECT-VERB AGR
(W) PUZZLE	NO	NO	YES
(W) RIDDLE (ADIVINANZA)	YES	NO	NO
(W) SEED (SEMILLA)	YES	YES	YES
AURAL PROCESSING	YES	YES	YES
ORAL ITEM (QUESTIONS)	YES	YES	YES
ORAL TREE (ARBOL)	YES	YES	YES

W= written test

5.5 *MATERIALS AND PROCEDURES*

Corrective feedback in the form of recasts requires the teacher to provide feedback to the student during everyday interaction in the classroom precisely when the error is detected by the teacher. The teacher was instructed about how and when to give a recast (a reformulation of the student's utterance). Specifically, the teacher was instructed to provide feedback on S-V and N-A agreement features only. In order for the learner to notice the agreement feature, the teacher was instructed to refrain from correcting any utterances other than the ones which contained the agreement features.

Most teachers are familiar with recasts; however, the emphasis was on **consistent** feedback for six weeks during science class. The teacher reformulated a whole noun or verb phrase correctly; however, this was only *part* of the learner's overall utterance. The teacher then added a tag question which could be either *¿sí?* or *¿no?* (Ortega and Long, 1997). The teacher in this particular study chose to use *¿no?* all the time. The reason for giving the teacher the choice of using either tag is that there seems to be variability among teachers, as evidenced by the pilot study's teacher who used the two tags. The tag was used as a measure to prevent the student from repeating the utterance, since it appears that repetition of the recast is often a natural reaction for learners when given this type of subtle feedback (Doughty, 1993b). Additionally, the teacher was encouraged to continue **immediately** with the conversation or instruction so as to prevent the student from repeating the form or from answering the tag, which would be considered output and would add an unwanted variable to the study (Ortega and Long, 1997). Only part of the learner's utterance was repeated during the recast, so as to encourage the learner to focus on the target feature in addition to the content of the utterance. The sequence looked like this:

21) S: en este experimento *echamos gotitas* ***rojo***
in this experiment we pour red (**masc.**) drops

T: *gotitas* ***rojas****, ¿no?*
red (**fem**.) drops, no?

T: (continues with content instruction)

Although the teacher was advised to give a similar amount of feedback to all the students, this is not always possible in a real classroom situation. Therefore, since research has shown that learners often benefit from listening to other students' interactions (Ellis, 1984; Pica, 1992, 1994), it was assumed in this study that all students should benefit from feedback even if some of them might have received more feedback at times than others.

Science lessons in the experimental groups were audiotaped for the duration of the experiment. Science lessons in the control groups were audiotaped at times[6].

5.6 *POSTTESTING*

The subjects in all three groups were given immediate posttests and delayed posttests six weeks after the first posttest. The tasks were the same as those used in the pretest.

FIGURE 8: EXPERIMENTAL DESIGN

F1	**F2**	**NF1**	**NF2**
N=18	N=17	N =17	N=11
Pretest Posttest Posttest	Pretest Posttest Posttest	Pretest Posttest Posttest	Pretest Posttest Posttest

N= NS+NNS

5.7 *CODING FRAMEWORK*

The coding system was developed from coding a few samples of the written and oral tests from the pilot study. The learner's IL was taken into consideration for coding purposes. IL in this study refers to approximate lexicon or morphology, such as regularization of an irregular verb, *poní* vs. *puse*, (I put), for example. In that case, the S-V agreement feature is still on target; however, the verb form is approximate, thus, is considered IL. IL, however, does not refer to approximate agreement. While the habitual use of the default, unmarked agreement forms (masculine, singular adjective and third person singular verb-ending) could be considered part of the learner's IL in general, for this study's coding purposes, the researcher had to take into account the approximations to the target-agreement forms, because otherwise there would have been no way to know whether the treatment had any effect or not.

The scoring scale for all categories (except for blanks in 5.7.3) received a binary scoring scale of either 1 or 0, according to whether the form satisfied the agreement criteria for a certain category (see figures 9, 10 and 11) or not.

5.7.1 *Noun-adjective agreement (N-A): gender and number*

The present study examined only adjective agreement in the noun phrase, because Spanish immersion literature shows that the acquisition of gender and number agreement in Spanish appears to be more problematic than that of article-noun agreement for immersion learners (see section 4.1.1). An added benefit from investigating only adjective-noun agreement, and omitting article-noun agreement, is the fact that in some cases, because of phonological constraints, the article does not always agree with the noun in Spanish, such as in *el agua* (the water, **fem**.), (see Whitley, 1986:150 for explanation of this constraint). These types of exceptions to the agreement rule could confound the data. However, the adjective always agrees with the gender of the noun without the phonological constraints that apply to articles. e.g.,

22) *el agua roja*
the red water, fem..

The forms were coded separately for gender and number.

Partial agreement, therefore, was not a problem since each feature (gender or number agreement) was coded separately. e.g.,

23) Las plantas *bonitos*
The nice (masc. pl.) plants (fem. pl.)

If the learner provided a form in which only one agreement feature (gender or number) was correct, this was coded as TL (target) or as IL, while the other incorrect feature was coded as NTL, non-target. In the example above, the learner provided the incorrect masculine gender but the correct plural number for the adjective *bonitas*. Therefore, zero points were assigned to the gender category and one point was assigned to the number category. Had the learner provided *bonetos*, instead of *bonitos*, the researcher would have coded that adjective as IL because of its approximation to the actual lexical item, one point would have still been awarded to the number agreement, but zero points to the gender agreement category, which would have been coded as NTL. Adjectives which normally show no overt gender marking, such as *verde* (green) or *caliente* (hot), were coded for number only (see figure 9).

When adjectives were part of fixed phrases which indicated weather, such as *hace frío* (it's cold), they were not coded for gender or number, since they do not involve agreement.

The deciding factor in noun-adjective agreement was the noun. Therefore, when the learner described a noun and then followed this description by omitting the noun in the following sentences, the adjective used was considered to refer to the original noun in the sentence. An example from the data is the following sentence (interlanguage),

24)	*Las* ***fresas*** *son*	*rojo,*	*son rico*	*y suave,*	*es ácido a veces.*
Gender		NTL	NTL		NTL
Number		NTL	NTL	NTL	NTL

(The) strawberries are red, are tasty and soft, is sour sometimes.

5.7.2 *N-A agreement coding categories*

FIGURE 9: NOUN-ADJECTIVE AGREEMENT (GENDER)

CATEGORY	GENDER AGREE-MENT	ENGLISH	CORRECT LEXICAL STEM	APPROXI-MATE LEXICAL STEM	SCORE
TL	+	-	+	-	1
IL	+	-	-	+	1
NTL	-	+	+	+	0

FIGURE 10: NOUN-ADJECTIVE AGREEMENT (NUMBER)

CATEGORY	NUMBER AGREEMENT	ENGLISH	CORRECT LEXICAL STEM	APPROXIMATE LEXICAL STEM	SCORE
TL	+	-	+	-	1
IL	+	+ (AURAL PROCESSING) - (PRODUCTION)	-	+	1
NTL	-	+	+	+	0

The following categories were considered for both gender and number agreement even though these were coded separately.

a) TL: target language

Refers to a target-like gender or a target-like number feature, e.g.,

21) *la semilla pequeña*

the small seed (fem.)

One point was assigned to gender and one point to number agreement.

b) IL: interlanguage

Refers to a non-target-like adjective but target-like agreement in gender or in number, e.g., *amaralo* instead of *amarillo (yellow)*.

One point was assigned to gender and one point to number agreement.

This category also includes responses in English when coding number agreement in the aural interpretation test only. In response to the aural interpretation/association task where a plural noun was required in order to interpret the sentence, students sometimes responded in English. However, it was clear from the response that the student interpreted the target adjective in the given sentence correctly. An example from the test is the following sentence in which the student was asked to associate with something, e.g.,

22) *generalmente son menos atractivas que*
las flores
(they) are generally less attractive than the flowers

The data showed that the student answered with the English word *leaves* instead of the Spanish *hojas*. Although this English noun does not indicate gender and, therefore, the gender agreement was coded as NTL, it does indicate correct interpretation of the number agreement (plural) of the adjective in the sentence and was, therefore, scored IL receiving one point in the number agreement category.

The IL category also includes adjectives which show gender or number agreement but are erroneously spelled in the written tests. For example, *rohos* (red, pl.) instead of the correct spelling: *rojos* (red, pl.).

In coding adjectival gender, the noun was the deciding factor, except in nouns which do not overtly show their gender such as flor (flower). In this case, other evidence such as the preceding article was taken into consideration. For example, if a learner said *el flor* *bonito* (the pretty flower, masc.), it was assumed that the learner considered this noun masculine and, therefore, the adjective agreed with this noun and was considered a case of IL.

c) NTL: non-target language

Refers to target and non-target-like adjectives lacking agreement in gender and/or in number where the context would require agreement, e.g.,

23) *las semillas pequeño:*
the small (masc., sing.) seeds (fem., pl.)

This category also includes responses for the target features given in English instead of Spanish, e.g.,

24) *el agua se volvió* ***red***
the water turned red

Here the student used an English adjective instead of a Spanish one (*roja).* This was coded as NTL for gender as well as for number agreement and received a scoring of zero points for each feature.

5.7.3 *Subject verb-agreement* (S-V)

Subject-verb agreement was coded disregarding tense, aspect and mood, e.g., in response to the question *¿qué observaste?* what did you observe? (in the experiment) some students answered *yo observo* (first person, **present**) instead of *yo observé* (first person, **past)**. Both cases were assigned a coding score of 1 for correct agreement since tense was not the focus of instruction.

Additionally, when the verb *haber* (is) was used in its existential meaning of *hay* (there is), it was not included in the analysis because it is never a context for agreement in that form e.g., *hay flores debajo de mi árbol* (there are flowers under my tree). Only when the verb *haber* acted as an auxiliary was it coded for subject-verb agreement, e.g., *hemos echado gotitas de colorante rojo* (we have poured red coloring drops).

FIGURE 11: SUBJECT-VERB AGREEMENT

CATEGORY	S-V AGREEMENT	ENGLISH	CORRECT LEXICAL STEM	APPROXIMATE LEXICAL STEM OR MORPHOLOGY	SCORE
TL	+	-	+	+	1
IL	+	-	-	+	1
NTL	-	+	+	+	0
BLANK	NONE	NONE	NONE	NONE	NONE

The following categories were considered for subject-verb agreement:

a) TL: target language

Refers to target-like verb form, target-like verb morphology and target-like agreement, e.g., *(yo) pongo* (I put, present). In the example given, the learner would receive one point.

b) IL: interlanguage

Refers to a non-target-like verb-stem, but correct morphology indicating agreement, e.g.: *ponimos (nosotros)* (instead of *pusimos*) (we put, past tense), which would receive one point; *ponio* (I put present tense) (instead of *pongo*), which would also receive one point.

In response to the aural interpretation/association task where a plural noun was required in order to interpret the sentence, students sometime responded in English. However, it was clear from the response that the student interpreted the given sentence correctly, e.g.,

25) *Se pegan a la piel de los animales*
(They) get stuck to the animals' skin

The student's response was the correct plural noun *fleas*. In this case the plural form was scored with 1 point even though it was in English, because it indicated correct interpretation of the plural verb *pegan*.

The **IL** category also includes verbs which show subject-verb agreement but are erroneously spelled in the written tests. For example, *isimos* instead of the correct spelling: *hicimos*

c) NTL: non-target language

Refers to target and non-target-like verb forms with incorrect morphology indicating lack of agreement, e.g., *(yo) crees* (you believe), instead of *creo* (I believe). This category receives a score of zero points.

In the case where an infinitive was provided, it was not included in the analysis when provided in the appropriate context e.g., *para hacer* (to do). However, when used in the context where an inflected form was required, then the infinitive was coded and counted as zero points for S-V agreement, e.g., *yo creer* (I to believe), instead of *yo creo* (I believe).

The pilot study indicated that sometimes the learner would provide two verbs, where the context only allowed one, e.g., *es tiene*. The first one, usually a copula, appeared to act as an auxiliary, perhaps to a progressive in a participial form (Woodson, personal communication), especially in the oral productive tests. Since this added verb acted as a possible auxiliary which, in Spanish, requires subject-verb agreement, it was considered in the coding framework as such.

This category includes the production of verbs in English.

d) BLANKS

This category refers to the absence of a form when the nature of the test or the context requires one. It indicates a missed opportunity by the learner to produce the form. For example, occasionally, a learner used a participial verb-form but neglected to use the appropriate auxiliary preceding the participle. The auxiliary in Spanish requires S-V agreement, while the participle does not; thus, the learner missed an opportunity to produce a form with S-V agreement. e.g., *yo plantado la flor* (I planted [participle] the flower). This category did not get scored in any way but remained a possible category for further analysis of the data.

Six percent of all the data were subjected to inter-rater reliability with three raters, resulting in 86% reliability.

5.7.4 *Feedback categories*

The errors in N-A and S-V agreement and the feedback provided by the teacher were coded according to the following categories:

a) TARGET ERROR

Refers to an error in N-A or S-V agreement that the student made while communicating in class. The error could be made either during spontaneous speech or during oral presentations. Spontaneous speech refers to content- (e.g., asking a question about science) and non-content-based speech (e.g., permission to go to the bathroom) and involves speaking with the teacher or among the students spontaneously. Oral presentation refers to a short presentation of content material by one student in front of the whole class following group discussion. Part of the oral presentation was based on notes and sometimes the student read part of the presentation. e.g.,

26) S: *esta roca es duro*
this rock is hard (masc.)

b) TARGET FEEDBACK

Refers to the recast+tag question that the teacher provided when a S-V or N-A (gender and number) agreement error was detected.

27) S: *la roca es duro* (masculine adjective)
the rock is hard (masc.)

T: es *dura, ¿no?* (feminine adjective)
it is hard (fem.), right?

28) S: *juntamos tallos largo* (singular adjective)
we collected long stems

T: *tallos largos, ¿no?* (plural adjective)
long stems, right?

c) MISSED OPPORTUNITIES

Refers to the opportunities for feedback on the target errors missed by the teacher, e.g.,

29) S: *la forma es áspero* (N-A masc. instead of fem.)
it is of a rough shape

T: (no feedback) *escriban el resultado*
write down the results

d) NON-TARGET ERROR

Non-target error refers to a non-agreement error that was mistakenly targeted for correction by the teacher; it does not refer to other non-agreement errors the student made. Instances of non-target errors mistakenly targeted by the teacher were verb tense instead of S-V agreement; the *ser/estar* (to be) dichotomy instead of S-V agreement; adjectival participles (*preparado*, prepared) which were occasionally treated as verbs instead of adjectives; definite and indefinite articles instead of adjectives; and an utterance which contained no error but which the teacher mistakenly considered to be inaccurate. An example of the teacher's feedback for the student's inaccurate use of the definite article follows:

30) S: ***los** montañas*
the mountains (masculine)

T: ***las** montañas, no?*
the mountains (feminine)

The following example illustrates the teacher's feedback for an utterance that was correct. The students were describing rocks which are feminine in Spanish, however the word *tamaño* (size) is masculine, thus the adjective after *tamaño* had to be masculine. The teacher, however, corrected the utterance to make it feminine.

31) S: *el tamaño es pequeño*
the size is small (masc.)

T: *pequeña, ¿no?*
small, right? (fem.)

e) NON-TARGET FEEDBACK

Refers to feedback provided for an error other than an agreement error, or for the few utterances that contained no error, but were corrected by the teacher such as example 31 above where the noun to be modified is masculine (size) but the teacher correction refers to the rock (feminine) the student was reporting on. The following example illustrates an instance of non-target feedback provided by the teacher:

32) S: *la roca* ***está*** *grande* (non-target error)
the rock is big

T: ***es*** *grande, ¿no?* (non-target feedback)
the rock is big, right?

5.8 *ANALYSES*

The data were separately analyzed for Spanish speakers (NS) and English speakers (NNS) after a preliminary diagnostic analysis of the two populations' knowledge of agreement. The table in Figure

5 is repeated below to show the comparison among the groups, both for English (NNS) and Spanish native speakers (NS).

FIGURE 12: GROUP COMPARISON

TARGET FORMS	INSTRUCTION GROUPS	INSTRUCTED CONTROL GROUPS	NO-INSTRUCTION GROUPS
S-V	F1 (morning 4th)	F2 (afternoon 4th)	NF1 (morning 5th)
N-A (G/N)	F2 (afternoon 4th)	F1 (morning 4th)	NF2 (afternoon 5th)

S-V = subject-verb agreement
N-A = noun-adjective agreement
G/N = gender/number

An initial analysis of the native speakers' pretests compared to the non-native speakers' pre-tests was performed. Multivariate One-Way analysis of variance (MANOVA) was performed to compare NSs and NNSs from the experimental F1 and F2 groups and the control NF1 and NF2 groups.

A MANOVA analysis of the native speakers' pretests compared US-born native speakers with foreign-born native speakers (USNS and FNS) at the start of the experiment.

The data were analyzed with a one-way analysis of variance (ANOVA) at the pretest stage to uncover possible differences among the instructional groups in their knowledge of the target agreement forms prior to the experimental treatment (this was done for NS and NNS separately).

To determine the effect of FonF instruction, analysis of testtime (pre-, post-, dpost-) x instruction (F1, F2, NF groups) was done with a repeated measure multivariate analysis of covariance (MANCOVA). This type of analysis was chosen, because even though there was not an overall difference among the groups at the time of the start of the study, three out of the fourteen tests did show initial differences in favor of the control groups. Follow-up analysis was done with univariate contrasts and post-hoc Scheffé.

The NS groups were analyzed for effect of instruction and for pretests difference with MANOVA.

To determine feature agreement differences among the NNS groups which received instruction in those features (S-V and N-A), the features were compared before instruction with a one-way analysis of variance (ANOVA) in the two treatment groups (F1 and F2) combined. Then, in order to compare feature differences after instruction, the gains between pre- and posttests from the group which received instruction in one particular feature (S-V gains from the F1 group, and N-A gender and number gains from the F2 group) were compared with a one-way analysis of variance (ANOVA).

In order to determine the amount of feedback provided by the teacher during science class, the audiotaped classroom data were analyzed according to the categories outlined in section 5.7.4. All instances of target errors, target feedback, non-target errors, non-target feedback and missed opportunities were tallied. Percentages were calculated in the following manner: percentage of target feedback and percentage of missed opportunities were calculated out of the total number of target agreement errors; percentage of non-target errors (corrected by the teacher) was calculated out of the total number of corrected errors (target and non-target); and percentage of non-target feedback was calculated out of the total number of feedback (target and non-target).

Qualitative analyses on the teacher's feedback and on the students' responses were performed on the audiotaped data when relevant to the discussion of the results obtained from the quantitative analyses.

5.9 *SUMMARY*

The research design, subjects and research site, feedback procedures, testing, coding framework and method of analysis were discussed in this chapter. This study used a pre-, post-, delayed posttest design with 63 subjects from an elementary Spanish two-way partial immersion program. Three groups were compared for subject-verb agreement and three groups were compared for noun-adjective agreement. These groups consisted of an *instruction in the form* group (e.g., subject-verb agreement), a *no instruction in the form, but instruction in the other form* (e.g., adjective-noun agreement) group, and a *no instruction group.* FonF treatment was implemented in the morning and afternoon fourth grade classes, while the comparison groups consisted of morning and afternoon fifth grade classes. The teacher who gave the treatment was the same for both experimental groups. Oral feedback consisted of a recast followed by a tag question (*¿no?*). No written feedback was provided. Testing consisted of two oral tests, three written tests and one aural processing test. All tests were communicative in nature and were congruent with the science instruction taking place in the experimental classes. The coding framework was based on the supplied forms; four categories were identified: target language (TL), interlanguage (IL), non-target language (NTL) and blanks.

The following analyses were performed:

- Comparison of knowledge in agreement features between NSs and NNSs before instruction (pretests): MANCOVA
- Analysis of NSs' pretests: USNS and FNS (MANOVA)
- Comparison of pretests among the three NNS groups: ANOVA.
- Effect of instruction (NNS) (testtime x instruction): Repeated

Measures MANCOVA.

- Follow-up analysis: univariate contrasts (MANCOVA) and post-hoc Scheffé.
- NS pretests and effect of instruction (testtime x instruction): Repeated Measure MANOVA.
- Target agreement feature differences before instruction (NNS) and gains in target agreement features after instruction (NNS): ANOVA
- Percentages of target errors, feedback on target errors, non-target errors and feedback on non-target errors.
- Qualitative analyses

NOTES TO CHAPTER 5

1. Seventy two subjects participated in this study originally. However, three subjects had to be removed from analysis because they failed to follow the written and oral tasks properly or did not follow them at all, due to learning disabilities. One subject was absent during the pretesting. The other five subjects missed one of the several tests either at the post or delayed posttest phase and consequently had to be removed from the data.

2. The teacher admitted becoming more aware of the errors after reading the researcher's proposal and request for permission to conduct research in her classroom.

3. The new verbs and adjectives were first established by the researcher after many hours of class-observation, and third- and fourth-grade science textbook reading. The words were then confirmed by the teacher in the experimental classes to be, in all

likelihood, new to the students. The most important reason for considering some verbs and adjectives "new" in the experimental classes was the pilot study. Students in the pilot study invariably confirmed the newness of the words by asking what those words meant.

4. It became problematic to measure number agreement with this task because sometimes students supplied a correct sentence such as *¿qué es roja y rica?* (what is red and tasty? fem.sing.). However, this sentence did not agree with the number provided on the test for that item which was *manzanas* (apples) (**plural**). The correct response should have been *¿qué son rojas y ricas?* (What are red and tasty? fem., pl.) It became difficult for the researcher to establish whether this was an adjectival number agreement error or a task interpretation error, where the student just failed to write a riddle in the plural form.

5. Prompting the students to start their answer with the pronoun does not contradict the pro-drop rule in Spanish in this case. Although usually the pronoun is omitted when the referent is known

from an earlier context, the referent in this case might not always be clear to the learner from the question alone. The prompt, therefore, helps the student organize the answer in complete sentences.

6. Recording every class in the comparison group became very difficult because the researcher didn't want to burden the teacher, who was very new in her position and had taken over a difficult class from another teacher who had gotten sick.

CHAPTER 6

RESULTS

6.0 *INTRODUCTION*

In order to present the results from the quasi-experiment conducted to investigate the effect of FonF implicit feedback on Spanish immersion students' knowledge of agreement, this chapter presents the following analyses: Preliminary diagnostic analysis: comparison between non-native (NNS) and native speakers' (NS) knowledge of the target agreement forms before instruction; comparison between US-born and foreign-born native speakers (USNS and FNS); pretest analysis and effect of instruction (NNS); pretest analysis and effect of instruction (NS); target feature differences in the two treatment groups (F1 and F2) (before and after instruction); and, finally, analysis of the amount of feedback provided by the teacher in the treatment groups.

The following tests were considered for analysis (the abbreviations would be preceded by pre-, post- or dpost- prefixes according to whether they were pretests, posttests or delayed posttests; the abbreviations in parentheses were used in the statistical analysis and on the raw data):

S-V oral item (question/answer) test (oriv)

S-V oral tree test (orav)

S-V written puzzle test (puzv)

S-V written seed test (semv)

S-V aural processing test (aurv)

N-A gender oral item (question/answer) test (orig)

N-A gender oral tree test (orag)

N-A gender written riddle test (adiv)

N-A gender written seed test (semg)

N-A gender aural processing test (aurg)

N-A number oral item (question/answer) test (orin)

N-A number oral tree test (oran)

N-A number written seed test (semn)

N-A number aural processing test (aurn)

The following groups were analyzed for comparisons:

1) F1 (morning instructed); F2 (afternoon instructed); and NF1 (morning uninstructed)
2) F2 (afternoon instructed); F1 (morning instructed); and NF2 (afternoon uninstructed)

F1 = subject-verb agreement treatment

F2 = noun-adjective agreement treatment (gender and number)

The target features were the following:

S-V = subject-verb agreement

N-A gender = noun-adjective gender agreement

N-A number = noun-adjective number agreement

Multivariate One-Way Analysis (MANOVA and MANCOVA) and follow-up analyses were conducted on SPSS software; individual ANOVAS and t tests were conducted on Minitab software. Boxplots and graphs were made on Minitab software. The level of significance was set at 0.05 for all the statistical analyses.

The discussion of all the findings is presented in Chapter 7.

6.0.1. *Preliminary diagnostic analysis: Comparison between non-native (NNS) and native (NS) speakers before instruction: language effect.*

Of interest to the present study is the effect of language on the combined non-native (NNS) and the combined native (NS) speaker's knowledge of the target agreement features before the treatment. The reason for combining all native speakers on the one hand, and all non-native speakers on the other, was that the researcher was trying to verify that there existed a difference in linguistic accuracy between these populations before the treatment began (see Chapter 2). It appeared, therefore, important, at this preliminary stage of analysis, to treat each of the two populations as a whole, rather than further divide them into experimental groups (F1, F2, NF1 and NF2).

A Multivariate Repeated Measures MANOVA analysis with a level for language and a level for treatment was used to examine the interaction of language effect and treatment effect for all three features. The language effect was calculated by comparing the scores from all the native speakers' pretests with those of the non-native speakers' pretests. The overall language effect indicated that native speakers scored higher than non-native speakers in the production pretests for the three target agreement features, but not in the aural processing test. This would reflect a typical situation in an immersion program (see Chapter 2).

The following descriptive statistics present the means for the NSs' and NNSs' pretests:

TABLE 6.0.1.1 PRETEST DIFFERENCES IN S-V

PRETEST	NS	NNS
puzzle	82	41.7
seed	87.0	38.0
oral item	92.1	58.6
oral tree	96.0	52.5

TABLE 6.0.1.2 PRETEST DIFFERENCES IN N-A GENDER

PRETEST	NS	NNS
riddle	62.2	54.8
oral tree	76.9	46.9
oral item	69.4	38.9

TABLE 6.0.1.3 PRETEST DIFFERENCES IN N-A NUMBER

TESTS	NS	NNS
oral item	80.4	64.2
oral tree	86.6	61.3

The Multivariate Test of Significance by language effect indicates that overall there was a significant difference between the native and non-native groups in all the production tests where F=0.00 for all the three features.

TABLE 6.0.1.4 EFFECT OF LANGUAGE: S-V AGREEMENT

Multivariate Tests of Significance

Test Name	Value	Exact F	Hypoth. DF	Error DF	Sig. of F
Pillais	.88408	61.01420	5.00	40.00	.000
Hotellings	7.62678	61.01420	5.00	40.00	.000
Wilks	.11592	61.01420	5.00	40.00	.000
Roys	.88408				

Note. F statistics are exact.

TABLE 6.0.1.5 EFFECT OF LANGUAGE: N-A GENDER

Multivariate Tests of Significance

Test Name	Value	Exact F	Hypoth. DF	Error DF	Sig. of F
Pillais	.54850	8.20016	4.00	27.00	.000
Hotellings	1.21484	8.20016	4.00	27.00	.000
Wilks	.45150	8.20016	4.00	27.00	.000
Roys	.54850				

Note. F statistics are exact.

TABLE 6.0.1.6 EFFECT OF LANGUAGE: N-A NUMBER

Multivariate Tests of Significance

Test Name	Value	Exact F	Hypoth. DF	Error DF	Sig. of F
Pillais	.44473	8.81033	3.00	33.00	.000
Hotellings	.80094	8.81033	3.00	33.00	.000
Wilks	.55527	8.81033	3.00	33.00	.000
Roys	.44473				

Note. F statistics are exact.

Based on the results obtained from comparing NNS and NS on the production pretests, the subjects were separated in groups of NNS and of NS for all further analyses.

The significant differences found between NSs and NNSs production pretests are shown in the following boxplots[1]. The boxplots are based on the following means for production tests, which were combined in order to obtain general information about the learner's ability for producing the target agreement forms.

TABLE 6.0.1.7 NNS and NS production pretests

	N-A Gender	N-A Number	S-V
NNS	46.6	71.1	48.3
NS	65.7	88.0	89.0

FIGURE 13:

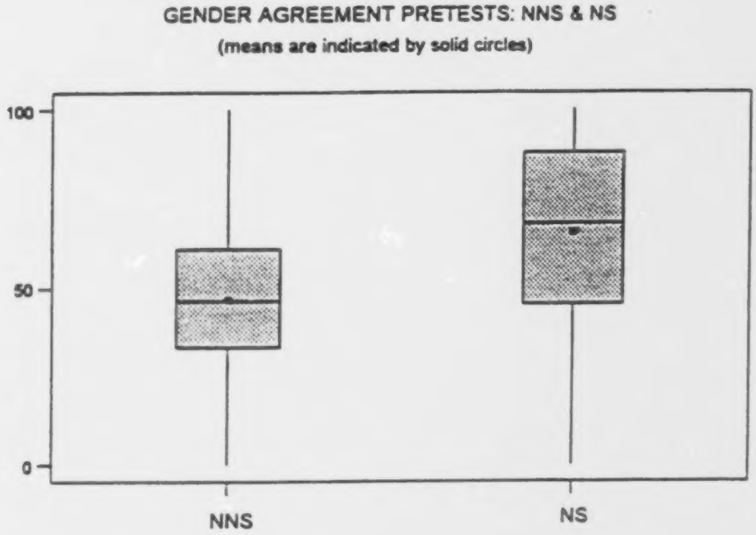


FIGURE 14:

NUMBER AGREEMENT PRETESTS: NNS & NS
(means are indicated by solid circles)

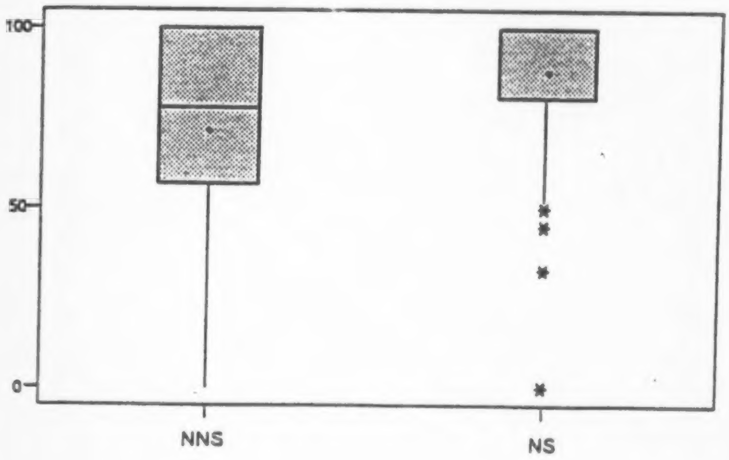
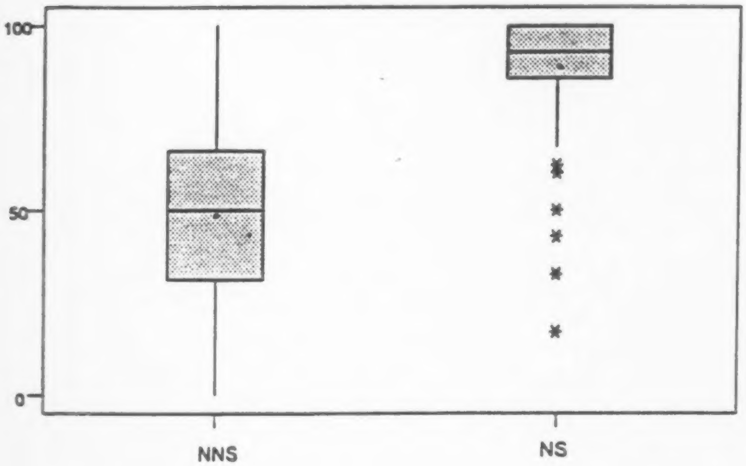


FIGURE 15:

SUBJECT-VERB AGREEMENT PRETESTS:
NNS & NS
(means are indicated by solid circles)



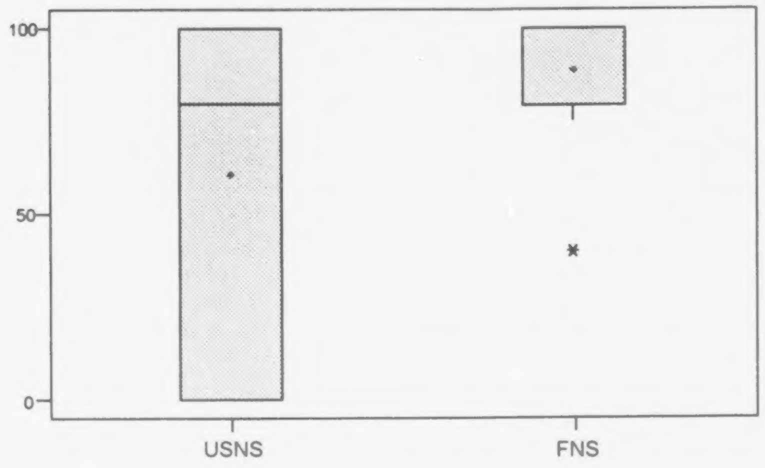
6.0.2 *US-born native speaker (USNS) and foreign-born native speaker (FNS)*

An analysis on the pretest scores comparing all native speakers who were born in the US (USNS), independently of instruction groups, and all native speakers who were born in other countries was conducted (FNS). This was done because of the relatively low means obtained from gender agreement pretests by NSs. Additionally, the researcher observed much variability and possible differences between US-born native speakers and foreign-born native speakers in accuracy of responses on gender agreement in the data (this was also observed in the pilot study). The information to differentiate the subjects between USNS and FNS was based on a questionnaire (see appendix) handed to all the subjects at the conclusion of the experiment. The total number of subjects in each group was 15 USNS and 13 FNS. The subjects were analyzed ignoring instructional groups because this was a diagnostic analysis independent of treatment. Additionally, the groups of NSs would have been reduced to extremely small groups tree pretest:

FIGURE 16:

DIFFERENCES IN GENDER AGREEMENT: USNS & FNS (preorag)

(means are indicated by solid circles)



The NS subjects were not divided into USNS and FNS for the remaining of the quantitative analysis since the results from MANOVA indicated no overall difference between the two groups (examples from the data are included in Chapter 7).

6.1 *NON-NATIVE SPEAKERS: DESCRIPTIVE STATISTICS*

TABLE 6.1.1 S-V AURAL PROCESSING TEST

Time	Group	N	Mean	Median
pre-				
	F1	10	20.30	25.00
	F2	7	28.60	40.00
	NF1	10	40.50	45.00
post-				
	F1	10	37.00	40.00
	F2	7	25.00	25.00
	NF1	11	36.36	40.00
dpost-				
	F1	10	34.00	40.00
	F2	7	27.14	20.00
	NF1	11	36.36	40.00

TABLE 6.1.2 S-V WRITTEN PUZZLE TEST

Time	Group	N	Mean	Median
pre-				
	F1	10	37.40	31.00
	F2	7	36.43	31.00
	NF1	11	49.64	50.00
post-				
	F1	10	33.70	32.00
	F2	7	25.14	29.00
	NF1	11	32.82	40.00

dpost-				
	F1	10	37.30	30.00
	F2	7	29.71	29.00
	NF1	11	41.82	40.00

TABLE 6.1.3 S-V SEED TEST

Time	Group	N	Mean	Median
pre-				
	F1	10	27.40	25.00
	F2	7	35.57	33.00
	NF1	11	50.09	50.00
post-				
	F1	10	28.30	29.00
	F2	7	38.71	38.00
	NF1	11	48.64	40.00
dpost-				
	F1	10	33.60	29.00
	F2	7	38.30	33.00
	NF1	11	41.27	40.00

TABLE 6.1.4 S-V ORAL ITEM TEST

Time	Group	N	Mean	Median
pre-				
	F1	10	51.70	49.00
	F2	7	56.71	57.00
	NF1	11	67.27	69.00

post-				
	F1	10	59.30	56.00
	F2	7	50.71	50.00
	NF1	11	71.27	70.00
dpost-				
	F1	10	57.20	58.00
	F2	7	59.43	66.00
	NF1	11	67.45	71.00

TABLE 6.1.5 S-V ORAL TREE TEST

Time	Group	N	Mean	Median
pre-				
	F1	10	43.80	43.50
	F2	7	37.14	33.00
	NF1	11	75.82	75.00
post-				
	F1	10	49.80	51.00
	F2	7	48.40	64.00
	NF1	11	68.55	77.00
dpost-				
	F1	10	43.00	41.50
	F2	7	64.57	68.00
	NF1	11	74.45	71.00

TABLE 6.1.6 N-A GENDER AURAL PROCESSING TEST

Time	Group	N	Mean	Median
pre-				
	F1	10	42.60	50.00
	F2	7	41.40	40.00
	NF2	7	21.86	20.00
post-				
	F1	10	41.50	40.00
	F2	7	51.86	40.00
	NF2	7	22.14	25.00
dpost-				
	F1	10	45.00	40.00
	F2	7	22.86	20.00
	NF2	7	40.00	50.00

TABLE 6.1.7 N-A GENDER WRITTEN RIDDLE TEST

Time	Group	N	Mean	Median
pre-				
	F1	10	41.80	35.50
	F2	7	55.71	57.00
	NF2	7	73.43	75.00
post-				
	F1	10	47.70	46.00
	F2	7	53.43	55.00
	NF2	7	63.71	57.00

dpost-				
	F1	10	53.40	50.00
	F2	7	40.57	44.00
	NF2	7	40.14	33.00

TABLE 6.1.8 N-A GENDER WRITTEN SEED TEST

Time	Group	N	Mean	Median
pre-				
	F1	7	48.90	60.00
	F2	5	67.40	67.00
	NF2	4	75.00	100.00
post-				
	F1	10	69.00	90.00
	F2	6	71.70	90.00
	NF2	6	41.70	25.00
dpost-				
	F1	7	64.30	100.00
	F2	6	83.30	100.00
	NF2	4	50.00	50.00

TABLE 6.1.9 N-A GENDER ORAL ITEM TEST

Time	Group	N	Mean	Median
pre-				
	F1	10	41.90	40.00
	F2	7	31.86	38.00
	NF2	7	46.29	45.00

post-				
	F1	10	44.80	43.50
	F2	7	39.43	38.00
	NF2	7	47.43	50.00
dpost-				
	F1	10	42.50	44.00
	F2	7	44.00	45.00
	NF2	7	42.29	45.00

TABLE 6.1.10 N-A GENDER ORAL TREE TEST

Time	Group	N	Mean	Median
pre-				
	F1	10	44.20	35.50
	F2	6	58.70	63.50
	NF2	6	37.50	37.50
post-				
	F1	10	40.30	32.50
	F2	7	45.00	40.00
	NF2	6	50.80	65.00
dpost-				
	F1	9	51.11	43.00
	F2	7	38.90	33.00
	NF2	4	40.50	31.00

TABLE 6.1.11 N-A NUMBER AURAL PROCESSING TEST

Time	Group	N	Mean	Median
pre-				
	F1	10	58.30	55.00
	F2	7	64.30	60.00
	NF2	7	58.60	60.00
post-				
	F1	10	63.20	71.00
	F2	7	56.71	60.00
	NF2	7	57.14	50.00
dpost-				
	F1	10	58.80	60.00
	F2	7	42.90	60.00
	NF2	7	55.70	60.00

TABLE 6.1.12 N-A NUMBER WRITTEN SEED TEST

Time	Group	N	Mean	Median
pre-				
	F1	9	89.11	100.00
	F2	7	66.10	83.00
	NF2	7	100.00	100.00
post-				
	F1	10	100.00	100.00
	F2	6	97.17	100.00
	NF2	6	80.00	90.00

dpost-				
	F1	8	97.00	97.00
	F2	7	86.86	100.00
	NF2	7	92.86	100.00

TABLE 6.1.13 N-A NUMBER ORAL ITEM TEST

Time	Group	N	Mean	Median
pre-				
	F1	10	61.90	58.00
	F2	7	60.71	62.00
	NF2	7	64.14	63.00
post-				
	F1	10	59.20	55.50
	F2	7	59.00	53.00
	NF2	7	62.71	60.00
dpost-				
	F1	10	63.10	63.50
	F2	7	56.86	56.00
	NF2	7	60.14	58.00

TABLE 6.1.14 N-A NUMBER ORAL TREE TEST

Time	Group	N	Mean	Median
pre-				
	F1	10	49.70	51.50
	F2	6	89.33	94.50
	NF2	7	46.30	50.00

post-				
	F1	10	52.90	50.00
	F2	7	62.86	50.00
	NF2	7	68.70	67.00
dpost-				
	F1	10	58.50	71.00
	F2	7	56.14	57.00
	NF2	5	52.60	63.00

6.2 *NNS' KNOWLEDGE OF TARGET AGREEMENT FEATURES BEFORE INSTRUCTION: COMPARISON OF PRETESTS BY INSTRUCTIONAL GROUPS*

The NNS subjects' knowledge of N-A and S-V agreement features was analyzed by using their pretests scores. A one-way analysis of variance (ANOVA) was used to compare the pretests scores among the groups (F1, F2 , NF1 and NF2). Out of the fourteen pretests administered, the ANOVA revealed significant differences in favor of the non-native uninstructed groups for three pretests (S-V tree, S-V seed, and N-A gender riddle) and close to a significant difference for one (S-V oral item) ($p= 0.51$). Overall, results from MANCOVA indicated, however, that there was no overall significant difference among the groups at the start of the experiment.

Tables 6.2 (below) show the analysis for the pretests which indicate significant differences among the groups for three of the tests.

ONE-WAY ANALYSIS OF VARIANCE FOR PRETESTS DIFFERENCES

TABLE 6.2.1 One-Way Analysis of Variance for S-V oral tree pretest

```
Analysis of Variance
Source    DF       SS       MS       F       P
Factor     2     8252     4126   11.34   0.000
Error     25     9098      364
Total     27    17350
                             Individual 95% CIs For Mean
                             Based on Pooled StDev
Level      N     Mean    StDev  ---------+---------+---------+-------
F1        10    43.80    19.55    (-----*-----)
F2         7    37.14    23.59  (-------*------)
NF1       11    75.82    15.23                  (-----*-----)
                             ---------+---------+---------+-------
Pooled StDev =    19.08            40        60        80
```

TABLE 6.2.2 One-Way Analysis of Variance for S-V written seed pretest

```
Analysis of Variance
Source    DF      SS       MS       F       P
Factor     2    2769     1385    3.51   0.045
Error     25    9855      394
Total     27   12624
                         Individual 95% CIs For Mean
                         Based on Pooled StDev
Level     N    Mean    StDev  -+---------+---------+---------+-----
F1       10   27.40    15.17  (-------*--------)
F2        7   35.57    20.47    (----------*---------)
NF1      11   50.09    22.95             (-------*--------)
                         -+---------+---------+---------+-----
Pooled StDev =   19.85        15        30        45        60
```

TABLE 6.2.3 One-Way Analysis of Variance for N-A gender written riddle pretest

```
Analysis of Variance
Source  DF      SS       MS       F       P
Factor   2    4123     2062    7.48   0.004
Error   21    5791      276
Total   23    9914
                         Individual 95% CIs For Mean
                         Based on Pooled StDev
Level     N    Mean    StDev  -+---------+---------+---------+-----
F1       10   41.80    15.04  (------*------)
F2        7   55.71    18.55        (-------*-------)
NF2       7   73.43    16.78                (-------*-------)
                         -+---------+---------+---------+-----
Pooled StDev =   16.61        32        48        64        80
```

The following boxplots show the differences among the NNS groups in three of the pretests (riddle, seed, tree).

FIGURE 17:

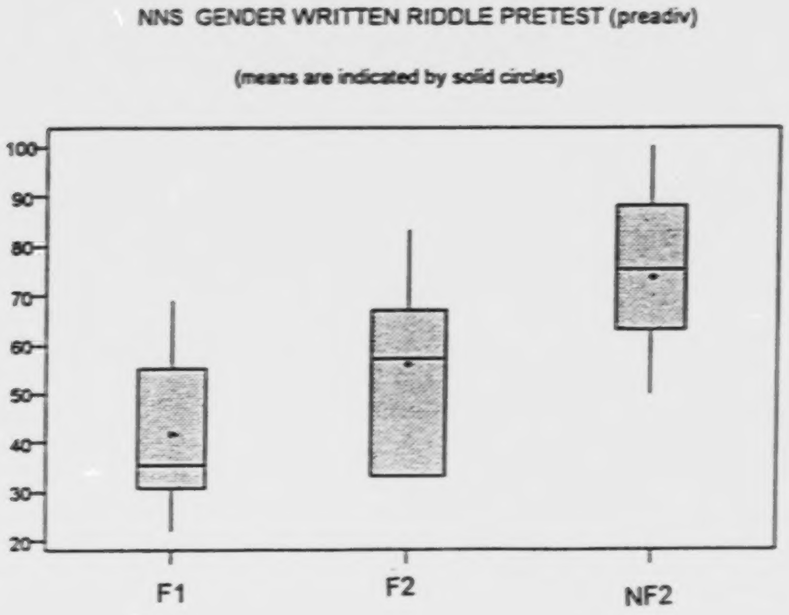


FIGURE 18:

NNS S-V WRITTEN SEED PRETEST (presemv)

(means are indicated by solid circles)

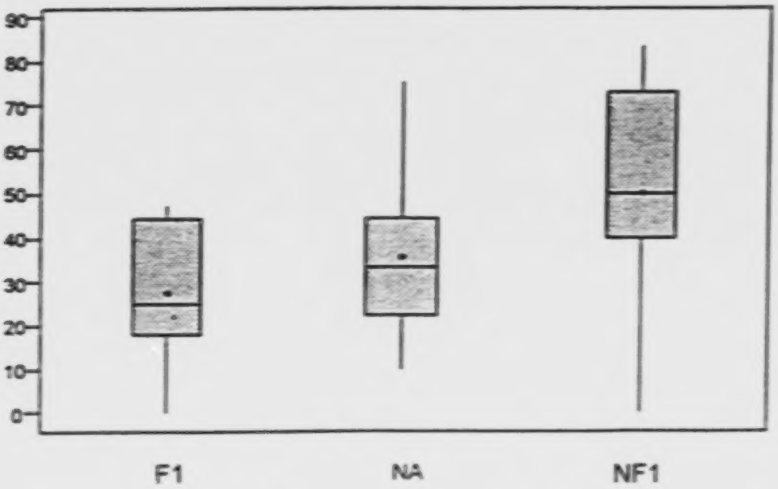
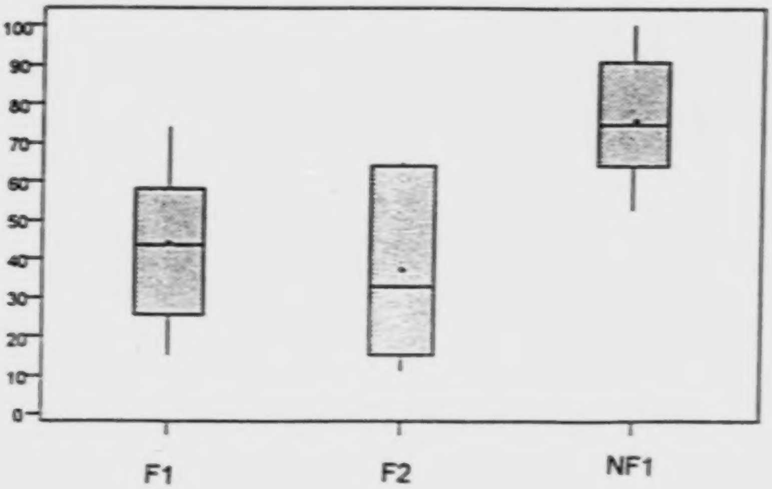


FIGURE 19:

NNS S-V ORAL TREE PRETESTS (PREORAV)

(means are indicated by solid circles)



The written seed test for gender and number agreement had to be eliminated from the analysis because it did not meet the MANCOVA assumptions. The MANCOVA eliminated the subjects who had no score for the N-A feature, either because they had not supplied an adjective, or the adjective supplied was of neutral gender. It appears that the MANCOVA eliminated the seed gender agreement pretest because three subjects (#1, #3, and #5) showed no score in gender agreement; their data revealed that they had supplied the neutral adjective (*verde*). Additionally, the MANCOVA eliminated the written seed number pretest. The reason for this is not clear, but the results from analyses of the non-native speakers' means on this test, indicated that the F1 (morning 4th) and NF2 (non-instructed afternoon) groups reached a ceiling effect of 98.11% and 100%, respectively. The high seed pretest means apparently were due to the high scores for all but three subjects in the F1 group (5 times 100%, 71%, 89%, and, 75%) and for all but two subjects in the F2 group (three times 100%, 83%, and 80%). Scores of 100% on the written seed test reflected, for the most part, a situation in which the learner supplied only a total of one adjective, and that adjective was accurate for N-A number agreement. Additionally, subject number 5 (F1) was missing a score because he did not supply an adjective (see individual scores in the appendix).

As a result, MANCOVA for number agreement among non-native speakers was performed on the remaining aural processing, oral item tests and oral tree tests only (the written riddle test had to be eliminated earlier from the N-A number analysis as explained in Chapter 5).

6.3 *EFFECT OF INSTRUCTION ON NON-NATIVE SPEAKERS' KNOWLEDGE OF AGREEMENT*

The main question in this study was whether incidental and implicit FonF in the form of feedback would have any short-term and long-term effect on the learner's developing system with respect to agreement features in the noun and verb phrase in Spanish. The next question asked whether this effect would be noticeable in the ability for oral and written production and interpretation. In order to answer these questions, repeated measures of Multivariate Analysis of Covariance (MANCOVA) were conducted by using the pretests as the covariate.

The variables considered in the analysis were the following:

Subject's L1	NNS (English) and NS (Spanish)
Target AGR feature	S-V, N-A gender and N-A number
Testtime	Pretest, posttest, and dpostest
Test type	Aural processing, oral (production) tests, and written (production) tests

The results obtained from the MANCOVA examined the interaction of testtimes (pre-, post-, and delayed post-) (between subjects) and treatment groups (between groups [F1, F2 and NF groups]). Analysis with MANCOVA was performed for each of the three target agreement features separately. The MANCOVA analyzed each test separately, but tests were not further grouped into aural processing and production oral or written tests, because the expectation was that the MANCOVA would indicate if there were differences found for any of the tests, which would then be analyzed or grouped further.

The results from the MANCOVA indicated that for non-native speakers the simple main effect of treatment for all three target agreement features (N-A gender agreement, N-A number agreement and subject-verb agreement) was not significant. Thus, Hypothesis 1, that incidental and implicit FonF would not have a significant effect on the learners' developing system as measured in gains from pretest to posttest and delayed posttest, could not be rejected. Hypothesis 2, that the gains from FonF instruction would not be evident in the learner's ability for interpretation or in written and oral production of the target form, could not be rejected either.

Although the results showed no simple main effect for instruction, significant effect was obtained for N-A gender agreement as illustrated in table 6.3.2 The effect of interaction for testtime and treatment groups for N-A number agreement and for subject-verb agreement was not significant. Follow-up univariate contrasts with MANCOVA for each testtime (post and delayed) comparing the three groups (interaction of testtime X instruction) in gender agreement show no further significant effect.

The following figures show the different level of variables used in the analysis:

FIGURE 20: Interaction of testtime x instruction for S-V agreement

L1: NNS

AGR FEATURE: Subject-verb (S-V)

TESTTIMES: pretest, posttest and dposttest

INSTRUCTIONAL GROUPS: F1, F2, NF1

TESTS: aural processing, written puzzle, written seed, oral item and oral tree

TABLE 6.3.1 Analysis of Testtime x Instruction in S-V agreement interaction

Within-subject and -group effect by S-V agreement

Multivariate Tests of Significance

Test Name	Value	Approx. F	Hyp. DF	Error DF	Sig. of F
Pillais	.51301	1.44898	10.00	42.00	0.193
Hotellings	.84940	1.61385	10.00	38.00	0.140
Wilks	.52186	1.53709	10.00	40.00	0.162
Roys	.43236				

Note. F statistic for WILKS' Lambda is exact.

FIGURE 21: Interaction between testtime

and instruction in N-A gender agreement.

L1 :	NNS
AGR FEATURE :	N-A Gender
TESTTIMES:	pretest, posttest and dposttest
INSTRUCTIONAL GROUPS:	F2, F1, NF2
TESTS:	aural processing, written riddle, oral item and oral tree

TABLE 6.3.2 Analysis of Testtime x Instruction in gender agreement interaction

Within-subject and -group effect by gender agreement

Multivariate Tests of Significance

Test Name	Value	Approx. F	Hyp. DF	Error DF	Sig. of F
Pillais	.81785	2.24845	8.00	26.00	0.570
Hotellings	2.41148	3.31579	8.00	22.00	0.012
Wilks	0.26797	2.79531	8.00	24.00	0.024
Roys	0.69423				

Note. F statistic for WILKS' Lambda is exact.

FIGURE 22: Interaction between testtime

and instruction in N-A number agreement.

L1: NNS

AGR FEATURE: N-A Number

TESTTIMES: pretest, posttest and dposttest

INSTRUCTIONAL
GROUPS: F2, F1, NF2

TESTS: aural processing, oral tree and oral item

TABLE 6.3.3 Analysis of Testtime x Instruction in number agreement interaction

Within-subject and -group effect by number agreement

Multivariate Tests of Significance

Test Name	Value	Approx. F	Hypoth. DF	Error DF	Sig. of F
Pillais	.19242	.60324	6.00	34.00	.726
Hotellings	.21690	.54225	6.00	30.00	.772
Wilks	.81536	.57308	6.00	32.00	.749
Roys	.13456				

Note. F statistic for WILKS' Lambda is exact.

6.3.1 *Trends for improvement* in the NNS's data

Although the results show no significant differences among the groups for effect of instruction, the means from the oral item test and from the aural processing test for N-A as well as for S-V agreement show a slight trend for improvement between pre- and posttests in the groups that received instruction in those forms. The following tables and accompanying graphs illustrate this:

TABLE 6.3.1.1 ORAL ITEM TEST

N-A gender agreement

GROUP	PRE	POST	DPOST
F2	31	38	42
F1	42	45	43
NF2	46	46	45

TABLE 6.3.1.2 ORAL ITEM TEST

S-V agreement test

GROUP	PRE	POST	DPOST
F1	51.7	59.3	57.2
F2	56.7	50.7	59.4
NF1	67.3	72.3	71.4

TABLE 6.3.1.3 AURAL PROCESSING TEST

N-A gender agreement

GROUP	PRE	POST	DPOST
F2	41.4	53.8	26.7
F1	42.6	46.1	50.0
NF2	21.9	21.7	30.0

TABLE 6.3.1.4 AURAL PROCESSING TEST

S-V agreement

GROUP	PRE	POST	DPOST
F1	20.3	37.0	34.0
F2	28.6	25.0	27.1
NF1	40.5	36.0	36.0

Note: the group which received FonF instruction in the target feature is bolded in the tables above and in the graphs below.

The tables above and the following graphs for the oral item and aural processing tests indicate that there was a slight improvement in N-A gender agreement and in S-V agreement from pretest to posttest, which remained stable in the delayed posttest in the oral item test, but not in the aural tests.

FIGURE 23: Oral Item Test

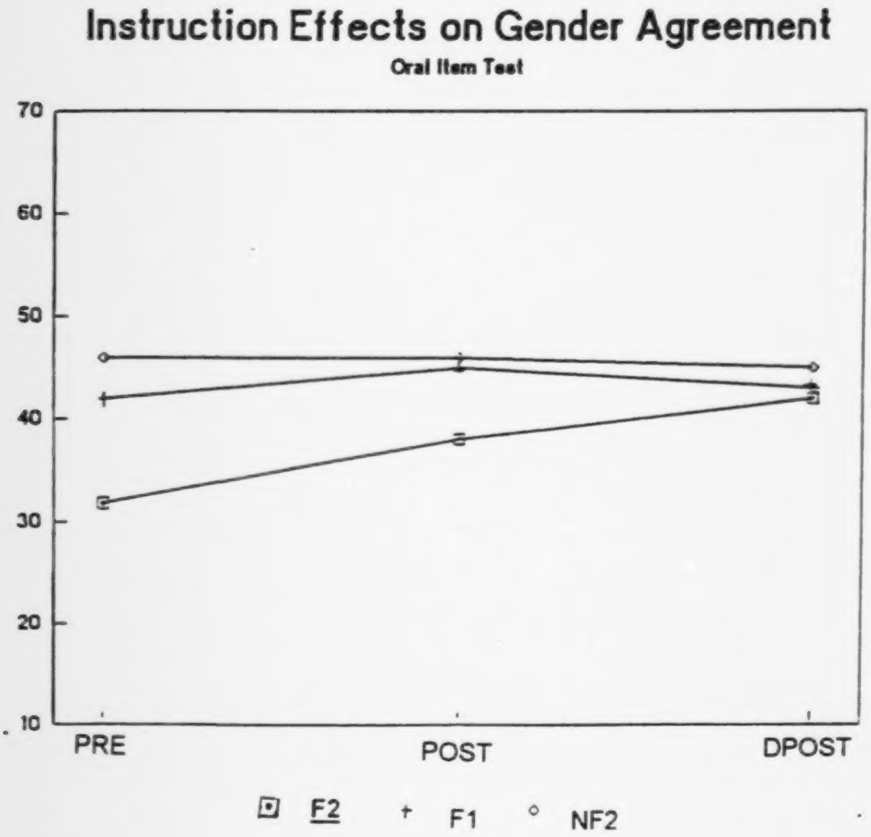


FIGURE 24: Oral Item Test

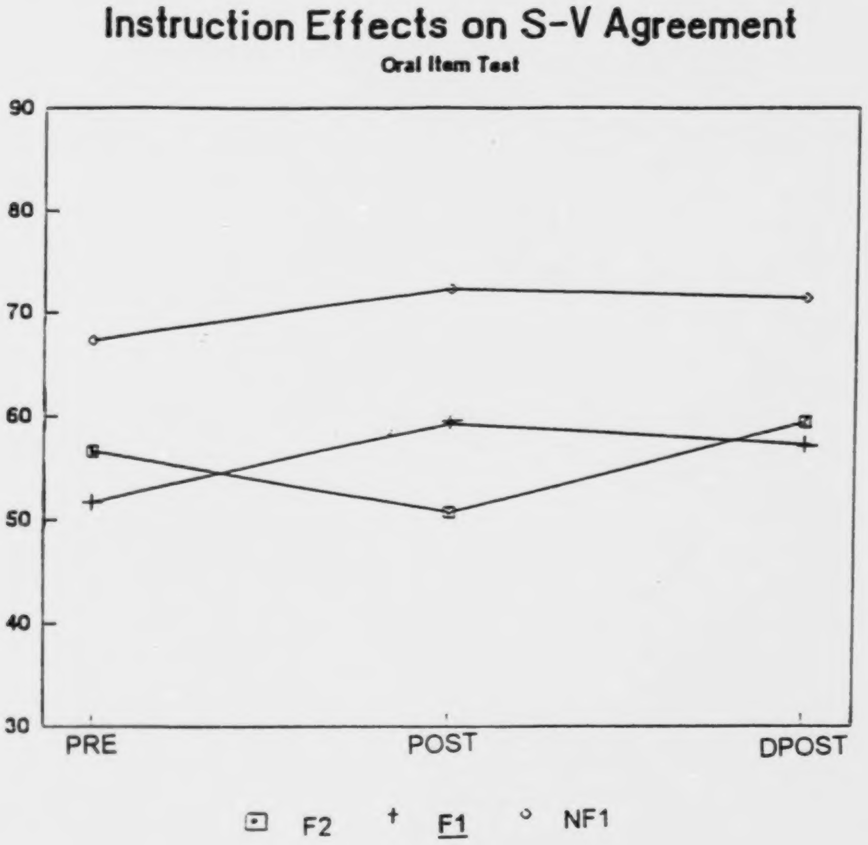


FIGURE 25: Aural Processing Test

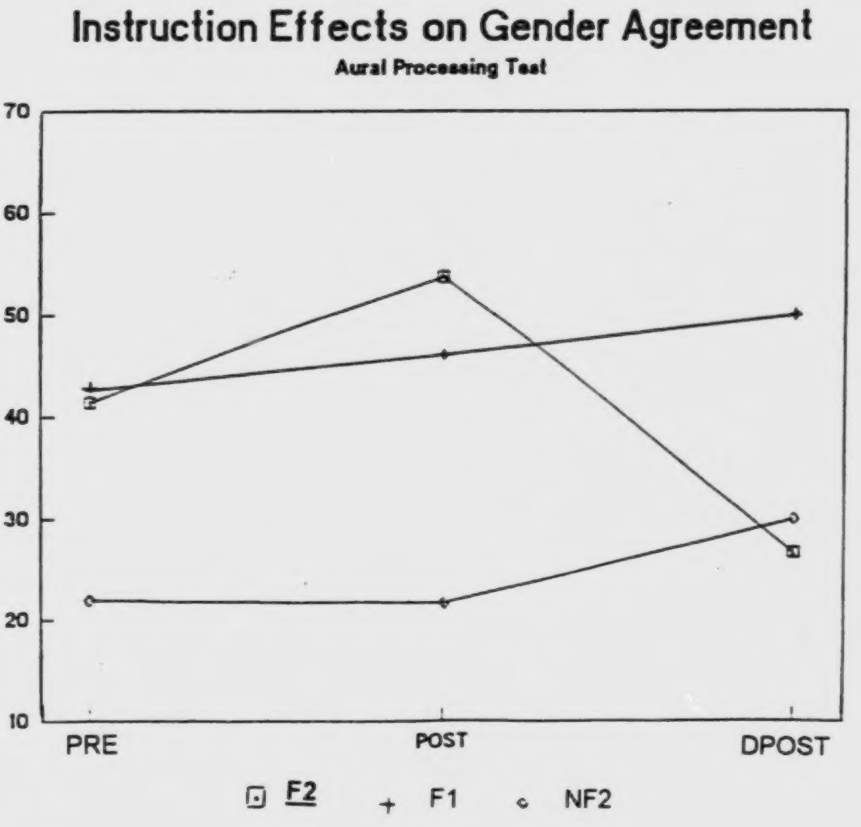
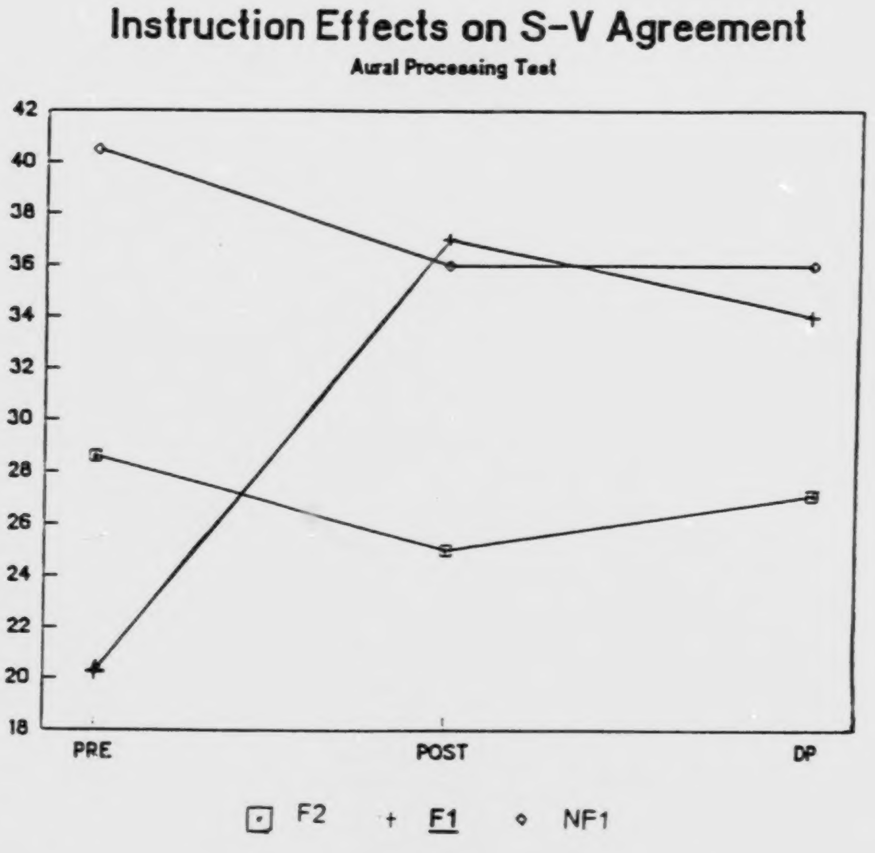


FIGURE 26: Aural Processing Test



6.4 *NATIVE SPEAKERS: DESCRIPTIVE STATISTICS*[2]

TABLE 6.4.1 S-V AURAL PROCESSING TEST

Time	Group	N	Mean
pre-			
	F1	8	25.60
	F2	10	44.00
	NF1	6	40.00
post-			
	F1	8	34.75
	F2	10	35.55
	NF1	6	40.83
dpost-			
	F1	8	31.25
	F2	10	41.11
	NF1	6	56.66

TABLE 6.4.2 S-V PUZZLE TEST

Time	Group	N	Mean
pre-			
	F1	8	66.60
	F2	10	91.33
	NF1	6	88.66

post-			
	F1	8	80.25
	F2	10	91.44
	NF1	6	87.33
dpost-			
	F1	8	93.12
	F2	10	94.88
	NF1	6	87.00

TABLE 6.4.3 S-V SEED TEST

Time	Group	N	Mean
pre-			
	F1	8	76.25
	F2	10	93.66
	NF1	6	91.00
post-			
	F1	8	66.50
	F2	10	94.44
	NF1	6	94.66
dpost-			
	F1	8	82.25
	F2	10	96.55
	NF1	6	90.16

TABLE 6.4.4 S-V ORAL ITEM TEST

Time	Group	N	Mean
pre-			
	F1	8	87.50
	F2	10	93.66
	NF1	6	95.33
post-			
	F1	8	87.75
	F2	10	93.66
	NF1	6	93.50
dpost-			
	F1	8	90.25
	F2	10	93.44
	NF1	6	95.66

TABLE 6.4.5 S-V ORAL TREE TEST

Time	Group	N	Mean
pre-			
	F1	8	93.00
	F2	10	95.77
	NF1	6	99.33

post-			
	F1	8	91.62
	F2	10	96.44
	NF1	6	95.50
dpost-			
	F1	8	94.75
	F2	10	93.22
	NF1	6	93.50

TABLE 6.4.6 GENDER AURAL PROCESSING TEST

Time	Group	N	Mean
pre-			
	F1	7	55.33
	F2	10	38.33
	NF2	3	41.66
post-			
	F1	6	56.66
	F2	9	39.50
	NF2	4	60.00
dpost-			
	F1	4	53.33
	F2	9	26.66
	NF2	4	46.66

TABLE 6.4.7 WRITTEN GENDER RIDDLE TEST

Time	Group	N	Mean
pre-			
	F1	8	53.25
	F2	10	52.50
	NF2	4	73.30
post-			
	F1	8	58.12
	F2	10	61.60
	NF2	4	73.25
dpost-			
	F1	8	65.38
	F2	10	52.20
	NF2	4	69.30

TABLE 6.4.8 GENDER ORAL ITEM TEST

Time	Group	N	Mean
pre-			
	F1	8	67.75
	F2	10	56.50
	NF2	4	67.75

post-			
	F1	8	61.63
	F2	10	60.40
	NF2	4	77.50
dpost-			
	F1	8	57.37
	F2	10	59.60
	NF2	4	64.75

TABLE 6.4.9 GENDER ORAL TREE TEST

Time	Group	N	Mean
pre-			
	F1	7	56.30
	F2	10	79.50
	NF2	4	64.20
post-			
	F1	7	81.57
	F2	10	85.60
	NF2	4	77.25
dpost-			
	F1	8	73.50
	F2	9	61.90
	NF2	3	58.30

TABLE 6.4.10 NUMBER AURAL PROCESSING TEST

Time	Group	N	Mean
pre-			
	F1	7	71.22
	F2	10	43.12
	NF2	4	63.33
post-			
	F1	7	73.88
	F2	10	57.12
	NF2	4	86.66
dpost-			
	F1	8	72.22
	F2	9	56.25
	NF2	3	73.33

TABLE 6.4.11 NUMBER ORAL ITEM TEST

Time	Group	N	Mean
pre-			
	F1	7	76.22
	F2	10	70.87
	NF2	4	94.00

post-			
	F1	7	79.66
	F2	10	71.12
	NF2	4	91.33
dpost-			
	F1	8	83.00
	F2	9	76.25
	NF2	3	90.00

TABLE 6.4.12 NUMBER ORAL TREE TEST

Time	Group	N	Mean
pre-			
	F1	7	94.77
	F2	10	77.00
	NF2	4	88.00
post-			
	F1	7	82.00
	F2	10	81.25
	NF2	4	94.33
dpost-			
	F1	8	77.77
	F2	9	68.75
	NF2	3	76.66

6.5 NATIVE SPEAKERS' KNOWLEDGE OF TARGET AGREEMENT FEATURES BEFORE INSTRUCTION: COMPARISON OF PRETESTS BY INSTRUCTIONAL GROUPS.

Multivariate One Way Analysis of Variance (MANOVA) of NS's pretests indicated that there were no significant differences among the three NS groups in any of the pretests for N-A gender and number agreement. There were no differences in S-V agreement pretests, except for the Puzzle pretest which indicated a significant difference of (F<.05).

Follow-up ANOVA indicated that the no-instruction control group NF1 was responsible for the difference. Results from MANOVA indicate that the treatment group F1 received lower scores (66%) in S-V agreement than the other two groups (F2 [89.70%] and NF1 [88.67%]) at the start of the experiment.

6.6 *EFFECT OF INSTRUCTION ON NATIVE SPEAKERS' KNOWLEDGE OF TARGET FEATURES*

The native speakers' data were analyzed by taking into account the same levels of variables used in the analysis of the non-native speaker's data. These were the following (see figures 20, 21, and 22 in section 6.3 for specifics about the analysis for every feature).

Subject's L1	NNS (English L1) and NS (Spanish L1)
Target AGR feature	S-V, N-A gender and N-A number
Testtime	Pretest, posttest, and dpostest
Test type	Aural processing, oral (production) tests, and written (production) tests

In order to analyze the effect of instruction on the NSs' knowledge of agreement features, repeated measures of Multivariate Analysis (MANOVA) were conducted. The results obtained from the MANOVA showed the interaction of testtimes (pre-, post-, and dpost-) (between subjects) and treatment groups

(F1, F2 and NF groups). The results indicated that the simple main effect of instruction was not significant. The MANOVA indicated a significant difference in S-V target agreement feature; however, this was in favor of the control groups (NF1 and F2). Additionally, there was no effect of instruction for either the N-A gender or the N-A number agreement features.

These results would be expected for S-V and N-A number agreement, because the total means from the pretests was above 80% in those features (see tables 6.3 and 6.0). Dropping subjects whose pretests means exceeded that mark would have resulted in groups with very few subjects, with only one or two subjects in some cases (see appendix for raw data). However, the NS's pretests means in N-A agreement were lower (65%) than in the other two features, which could have possibly led to gains in gender agreement accuracy. The results from MANOVA indicate that overall, though, there was no significant result in favor of the treatment groups for the interaction of testtimes x instruction in any of the features. Thus, Hypotheses 1 and 2 could not be rejected with respect to any of the target features for native speakers.

Results from the MANOVA which indicated significant differences on a few tests were followed-up by One-way ANOVAs or post-hoc Scheffé. In the S-V tests the results from MANOVA indicated a significant difference in the seed post- and dposttests (F=.0091 and F=.0264). Follow-up ANOVAs indicated that In the first case the difference was in favor of the two control groups (F2 and NF1) (F=.03588 and F=.0567) and in the dpost- case, the difference was in favor of the no-instruction-control group (NF1).

Results from the gender agreement feature from MANOVA indicated a significant difference in the aural post- and dposttests in favor of the uninstructed control NF2 group. A Post-hoc Scheffé, however, resulted in no significant differences.

The following tables indicate the differences in the S-V seed test and in the aural gender processing test:

TABLE 6.6.1 S-V SEED POSTTEST

----- ONEWAY -----

Variable written S-V seed posttest (postsemv)

By Variable TREATMENT

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	4163.1917	2081.5958	5.9221	.0091
Within Groups	1	7381.4333	351.4968		
Total	23	11544.6250			

TABLE 6.6.1.A Post-hoc Scheffé S-V POSTTEST

----- ONEWAY -----

Variable S-V seed posttest

By Variable TREATMENT

Multiple Range Tests: Scheffé test with significance level .05

The difference between two means is significant if

MEAN(J)-MEAN(I) >= 13.2570 * RANGE * SQRT(1/N(I) + 1/N(J))

with the following value(s) for RANGE: 3.72

(*) Indicates significant differences which are shown below:

Mean	TREATMENT	
66.5000	F1	
94.3000	F2	*
94.6667	NF1	*

TABLE 6.6.2 S-V SEED DELAYED POSTTEST

----- ONEWAY -----

Variable S-V seed dposttest

By Variable TREATMENT

Analysis of Variance

Source	D.F	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	954.1000	477.0500	4.3420	.0264
Within Groups	21	2307.2333	109.8683		
Total	23	3261.3333			

TABLE 6.6.2. A Post-hoc Scheffé S-V SEED DELAYED POST-TEST

```
----- ONEWAY -----
Variable  S-V seed dposttest
By Variable  TREATMENT
Multiple Range Tests:  Scheffé test with significance level .05
The difference between two means is significant if
 MEAN(J)-MEAN(I)  >= 7.4118 * RANGE * SQRT(1/N(I) + 1/N(J))
with the following value(s) for RANGE: 3.72
 (*) Indicates significant differences which are shown below:
   Mean       TREATMENT
   82.2500      F1
   90.1667     NF1
   96.9000      F2  *
```

TABLE 6.6.3 AURAL PROCESSING N-A GENDER POSTTEST

Variable Post- gender aural processing

By Variable GROUPS for noun-adj comparisons

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	3232.0795	1616.0398	3.8755	.0388
Within Groups	19	7922.8750	416.9934		
Total	21	11154.9545			

TABLE 6.6.3.A Post-hoc Scheffé AURAL PROCESSING N-A GENDER POSTTEST

----- ONEWAY -----

Variable post gender aural processing

By Variable GROUPS noun-adj comparisons

Multiple Range Tests: Scheffé test with significance level .05

The difference between two means is significant if

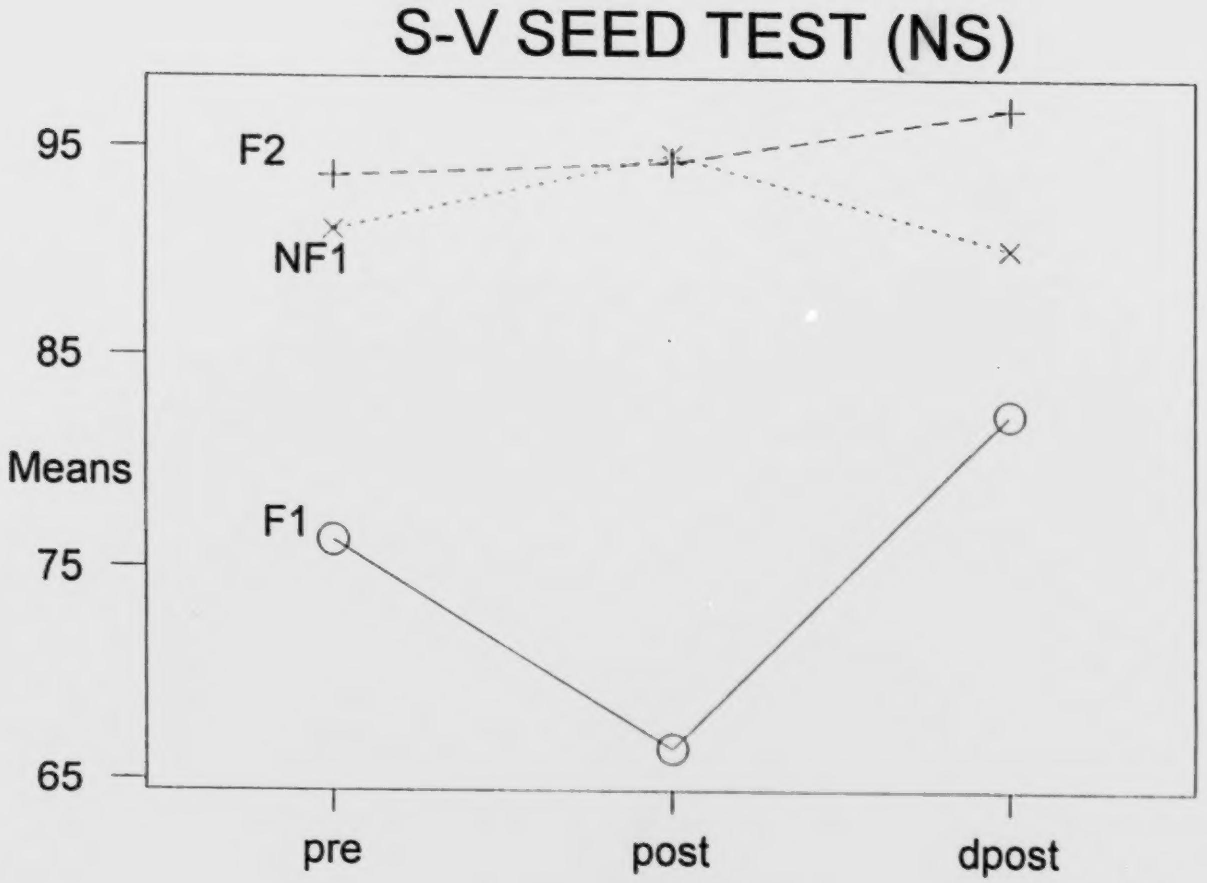
MEAN(J)-MEAN(I) >= 14.4394 * RANGE * SQRT(1/N(I) + 1/N(J))

with the following value(s) for RANGE: 3.75

No two groups are significantly different at the .050 level.

The following graph shows the difference of effect of Instruction in the S-V written seed test for NS:

FIGURE 27



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6.7 *ANALYSIS OF FEATURE DIFFERENCES: N-A GENDER AGREEMENT, N-A NUMBER AGREEMENT AND SUBJECT-VERB AGREEMENT*: NNS

6.7.0 *Before instruction*

A one-way analysis of variance (ANOVA) to compare if there were *differences by target feature* in the acquisition of N-A gender agreement, N-A number agreement and S-V agreement in the two treatment groups (F2 and F1) before instruction, revealed significant differences in favor of number agreement. The following table shows the feature difference before instruction in the two experimental groups.

TABLE 6.7.0 One-Way Analysis of Variance of target features before instruction

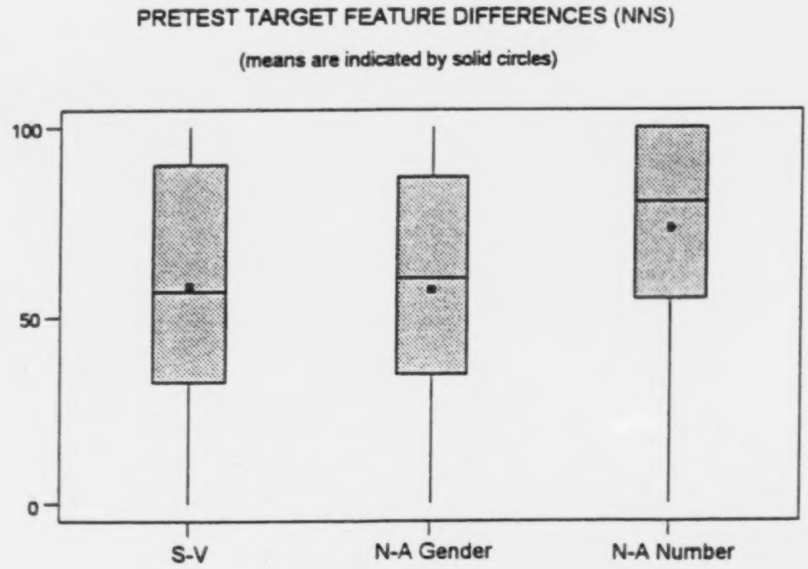
Analysis of Variance

Source	DF	SS	MS	F	P
Factor	2	22648	11324	11.52	0.000
Error	440	432671	983		
Total	442	455319			

```
                   Individual 95% CIs For Mean
                   Based on Pooled StDev
Level     N    Mean   StDev  ------+---------+---------+---------+
gender   132  57.05   32.78  (-----*------)
S-V      174  57.82   32.01   (-----*-----)
number   137  72.94   29.04                (-----*------)
                        -----+---------+---------+---------+
Pooled StDev =  31.36         56.0      64.0      72.0
```

The following boxplot shows the differences among the three features in the two experimental groups prior to instruction:

FIGURE 28:



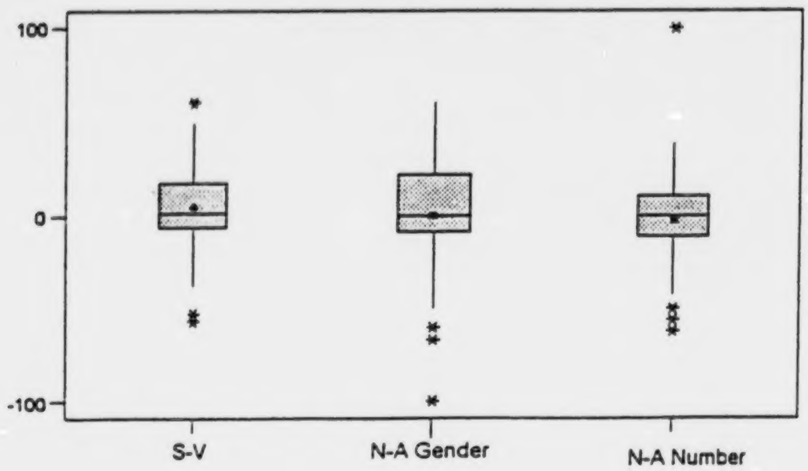
6.7.1 *Difference in feature gains after instruction*

A one-way analysis of variance (ANOVA) comparison among the three target agreement feature gains between pre- and posttests made by the two instructional groups (F1 and F2) in N-A gender agreement, N-A number agreement and S-V agreement revealed no significant feature differences.

Thus, Hypothesis 3, that the gains in N-A number agreement would be higher than the gains in N-A gender agreement, could not be supported. Hypothesis 4, that the gains in "meaningful morphology" (S-V) would be higher than in "non-meaningful morphology" (N-A) could not be supported either. The following boxplot illustrates the feature gains after instruction:

FIGURE 29:

Boxplot of Gains: S-V, N-A Gender, N-A Number
(means are indicated by solid circles)



6.8 *ANALYSIS OF FEEDBACK*

Feedback analysis was performed on audiotaped data from class recordings. The data were recorded on tapes according to the topic of instruction, which was the same for both treatment groups (heat, flower, volume of a stone, rocks, density of towels, weather and temperature) (see tallied data in the appendix). Although the researcher's instruction for the teacher was to record every class, in reality the teacher was unable to do that because of the demands her position as a teacher placed on her. The teacher most often recorded during oral presentations and when giving a project to students. Students were also recorded at times when working in groups. Although the numbers of errors/feedback tallied reflect only an approximate amount of errors, it is the researcher's belief that what is important in this analysis is the ratio of feedback to target errors, because there is no set number of errors or of feedback in the literature against which these results could be measured. The data recorded provide a good idea of how much feedback the learners received for the amount of target errors recorded. This ratio most likely would remain the same with a larger amount of errors recorded. Ideally, one would want the teacher to provide feedback 100% of the time.

The following coding categories were considered in the analysis of the amount of feedback provided by the teacher in the treatment F1 and F2 groups (see section 5.7.4 for explanation): instances of target errors, target feedback, missed opportunities, non-target errors (mistakenly corrected by the teacher)[3], and non-target feedback. The percentage of target feedback and percentage of missed opportunities were calculated out of the total number of target agreement errors; the percentage of non-target errors was calculated out of the total number of errors the teacher corrected (target and non-target); and the percentage of non-target feedback was calculated out of the total number of feedback (target and non-target). The results revealed that the teacher provided 62.79% of feedback in S-V agreement (out of 129 S-V agreement errors), 63.29% of N-A gender agreement feedback (out of 79 N-A/G errors), and 69.44% of N-A number agreement feedback (out of 36 N-A/N errors). The teacher missed 37% of the opportunities for feedback in both S-V and N-A gender agreement and 30.55% in N-A number agreement. 25.68% of all errors corrected by the teacher were not in S-V agreement, but in other verb-related errors, such as tense, and 25.68% of all the feedback in the F1 group was not in the S-V target agreement feature. Many of the errors related to nouns that were corrected by the teacher were not in adjectival agreement but in noun-article agreement instead. The percentage of non-target errors was 29.57% for N-A gender agreement , and 26.47% for N-A number agreement. 29.5% of the total feedback in gender agreement was non-target feedback and 26.47% of the total feedback in number agreement was non-target feedback.

The following tables illustrate these results:

TABLE 6.8.1 Feedback provided by the teacher during science class

GROUP	TARGET FEATURE	TARGET ERROR	TARGET FEEDBACK	MISSED OPPORTUNITY	NON-TARGET ERROR	NON-TARGET FEEDBACK
F1	S-V	129	81	48	28	28
F2	N-A/G	79	50	29	21	21
F2	N-A/N	36	25	11	9	9

TABLE 6.8.2 Total number of errors and of feedback

GROUP	TARGET FEATURE	NUMBER OF CORRECTED ERRORS (TARGET AND NON-TARGET)	TOTAL NUMBER OF FEEDBACK (TARGET AND NON-TARGET)
F1	S-V	109	109
F2	N-A/G	71	71
F2	N-A/N	34	34

TABLE 6.8.3 Percentage of feedback

GROUP	TARGET FEATURE	TARGET FEEDBACK AS PER-CENT OF TARGET ERRORS	MISSED OPPOR-TUNITY AS PER CENT OF TARGET ERRORS	TARGET ERRORS AS PER CENT OF CORRECT-ED ERRORS	NON-TARGET FEEDBACK AS PER CENT OF ALL FEEDBACK
F1	S-V	81/129 62.79	48/129 37.00	28/109 25.68	28/109 25.68
F2	N-A/G	50/79 63.29	29/79 36.70	21/71 29.57	21/71 29.57
F2	N-A/N	25/36 69.44	11/36 30.55	9/34 26.47	9/34 26.47

6.9 *SUMMARY*

A diagnostic analysis of all the subjects' knowledge of the target agreement features (N-A gender, N-A number and S-V) before instruction revealed that non-native speakers showed significantly lower means in all production tests (written and oral) than their native-speaker peers. As a result, subjects were divided in groups of non-native- (NNS) and native- (NS) speaker groups for the remaining analyses. Results from the diagnostic NSs' analysis revealed that overall there was no difference between the groups, except for the oral tree test. Results from the NNSs' pretests showed significant differences among the groups on three of the tests. Results from MANCOVA analyses to test the effect of implicit and incidental FonF instruction showed no significant gains and no differences among the NNS groups; thus, Hypotheses 1 and 2 could not be rejected. Results from comparing the native speaker's groups prior to instruction revealed no overall significant differences among the NS groups, except for the S-V seed test. Results from the effect of instruction in S-V agreement revealed a significant difference in favor of the control groups (F2 and NF2) in the written seed test only. N-A gender agreement (the only feature with means under 80% before instruction) among the NSs groups showed no significant differences. Results from comparing the acquisition of the target agreement features in the two experimental groups (F1 and F2) revealed a significant difference in favor of N-A number agreement before instruction. Results from comparing the feature gains after instruction by the two experimental groups showed no significant differences for any of the features. Results from analyzing the amount of feedback provided for the target-agreement errors indicated that the teacher provided 62.79% of feedback in S-V agreement, 63.29% of feedback in N-A gender agreement, and 69.44% in N-A number agreement.

NOTES TO CHAPTER 6

1. A boxplot displays the distribution of data with a six-number summary, as follows. The bottom end of the box is the 1st quartile, the value for which 25% of the observations fall at or below it. The top of the box is the 3rd quartile, the value for which 75% of the data fall at or below it. The box length, therefore, represents the middle 50% of the observations. The horizontal line in the box is the median; the dot in the box is at the mean of the observations. The two lines outside of the box extend to the maximum and minimum observations.

2. The descriptive statistics for native speakers were calculated with MANOVA which does not indicate medians, just means.

3. The non-target errors category refers only to those non-agreement errors that the teacher mistakenly targeted for correction; it does not refer to the rest of the non-target errors that students made in class.

CHAPTER 7

ANALYSIS AND DISCUSSION

7.0 *INTRODUCTION*

This chapter discusses the results obtained in Chapter 6. The following issues are discussed: Preliminary diagnostic analysis of non-native-speaking (NNS) and native-speaking (NS) subjects; difference in the data between USNS and FNS; effect of instruction on the NNSs' knowledge of the target agreement forms (S-V, N-A gender and number); analysis of the difference in acquisition of features in the two NNS treatment groups (F2 and F1): of N-A number agreement, N-A gender agreement, and of subject-verb agreement; effect of instruction on NSs; markedness effect; evaluation of the instruments for testing used in the study; evaluation of the proposed cognitive processes.

7.0.1 *Preliminary Diagnostic Analysis: comparison between NNSs' and NSs' knowledge of the target forms before instruction*

The results show a significant difference between all the native speakers and the non-native speakers in production ability (table 6.0.1) for all the target agreement features before instruction; NNSs scored significantly lower than NSs at the start of this experimental study. These results are in accordance with the immersion literature from Canada (Genesee, 1987; Swain, 1985) as well as from the US (Barfield and Rhodes, 1994; Cohen, 1974a). Although the NNS subjects in the present study have had four to five years of content instruction in Spanish, it is apparent from the results that their knowledge of S-V and N-A agreement features is significantly different from that of their NS peers. These results indicate that research on finding ways to improve the NNSs' ability in these areas is important. The immersion learning literature is based mostly on studies that address the lack of grammatical knowledge displayed by NNS immersion learners (Harley, 1989, 1993; Plann, 1979; Swain 1991; Swain, 1998; Swain and Lapkin, 1989,). Few studies have compared NNS to NS populations (Cohen 1974a; Harley and Swain, 1984; Swain, 1985), especially, in a two-way immersion program where both populations learn side-by-side in the same classroom (Barfield and Rhodes, 1994). In fact, results from comparing the two populations in the present two-way immersion study (NS and NNS) indicated that the populations are different enough in their grammatical knowledge to warranty further separate analyses for each.

Swain (1985) advocated the "push" from semantic to syntactic processing in immersion classrooms. Essentially, the findings from the pretests support this need. However, Swain's idea is somewhat modified in the present study: immersion learners have to develop cognitive linguistic abilities which will allow them to *integrate* the processes of semantic with syntactic language analysis, rather than to *move* from one to the other. Two-way immersion programs are thought to be advantageous to NNS learners because the NNS learners are exposed to NS peers as models, as compared to regular immersion programs where the teacher is the only model.

However, the results from the diagnostic analysis (table 6.0.1) indicate that two-way immersion does not seem to provide the NNS learner with a great advantage with respect to the acquisition of grammatical features such as S-V agreement or N-A agreement.

The following examples from the pretest data illustrate the difference between NNSs' and NSs' speech with respect to S-V and N-A agreement (See the appendix for the questions asked on these tests and for the translation of the transcript; and see sections 5.4 for explanation of the tasks):

Oral question/answer (item) pretest (S-V, N-A gender and number)

33.a) Non-native speaker's sample

1. *Yo reuniste* una vaso y una tallo, tijeras y colorante rojo.
2. Ella *se cortó* la tallo en tres partes de arriba.
3. *Yo pusiste* (corrected to nosotros after she heard the prompt), *Nosotros pusiste* la tallo en el colorante rojo.
4. ¿Cuántas gotitas *ponieron* en el agua?
5. *Yo observaste* que la rojo colorante se observan la rojo, la rojo colorante.

6. *Ellos han* visto la misma cosa que la *tallo se observa* la rojo agua.

7. *El planta se observan* la agua rojo.

8. Las gotitas eran rojo.

9. La agua se volvió rojo, muy, muy muy rojo.

10. *La planta voy* a ser amarillo y no rojo.

11. Yo me gusta el sandía porque es muy rico y por afuera es muy duro y adentro es rojo y afuera es verde.

12. Yo me gusta tomates porque son, son muy maduro y verde y yo me gusta porque son muy rico también (NNS, F2 group, 23).

Answers one through five and seven indicate lack of S-V agreement (italics); answers five to eleven show lack of N-A agreement where the unmarked masculine instead of the marked feminine form of the adjective is given (underlined); and answers eight *and* twelve show lack of N-A number agreement where the unmarked singular form of the adjective is given instead of the plural marked form (double underline). It is interesting to notice that in question three the subject changed her answer from *yo* to *nosotros* to follow the prompt given by the researcher but made no attempt whatsoever to modify her subject-verb agreement which was inaccurate in the first case also. Furthermore, questions 1, 3 and 5 are answered with the same morphological form of the verb as the one from the questions, *¿qué reuniste, qué pusiste and qué observaste?* This example indicates that many NNS learners in this study appeared to be oblivious to the notion of agreement at the start of the experiment. Additionally, in the case of number agreement, it is interesting to note that the subject had no apparent difficulty with pluralizing the copula (*tomates son* in answer 12 and *las gotitas eran* in answer 8) but nonetheless this was followed by lack of N-A number agreement which suggests that the proper use of the copula might possibly be formulaic.

The following example from the NS data illustrates the contrast between the two populations:

34.b) Native speaker sample (pre-oral item test, S-V, N-A gender and number)

1. Yo *reuní* un vaso, gotas de colorante y agua.

2. Ella *cortó* el tallo con las tijeras.

3. Nosotros *ponimos* colorante rojo en el vaso y.

4. Cuántas gotitas *echaron* en el vaso?

5. Yo *observé* en el experimento que los tubitos del tallo *se pusieron* rojos.

6. Ellos *observaron* lo mismo también.

7. La planta que *poní* en el vaso *se volvió* roja.

8. Las gotitas que *yo poní* en el vaso *fueron* chiquititas y rojas.

9. La agua *se volvió* roja.

10. La planta *se cambiaría* poniéndose amarilla.

11. La sandía *es* rica y jugosa. La sandía me gusta mucho porque *es* muy jugosa y deliciosa.

12. Los tomates *son* rojos y suaves. Los tomates me gustan porque *tienen* jugo adentro (NS, F2 group, subject 32).

The examples above indicate that this NS had no difficulty with agreement whether it was in S-V or N-A (some NSs appeared to have some difficulty with adjectival gender agreement though, see section 7.0.2 below). Some irregular verbs are regularized (*poní* instead of *puse*) which could be a delayed developmental problem because the subject is not in his native country anymore.

The results indicate that there appears to be no difference in aural processing of the forms between NNSs and NSs. Although the literature (Barfield and Rhodes, 1994; Swain, 1985) supports this finding, more research is necessary to ascertain this. While the NNSs' low scores on production pretests parallel those in aural processing pretests, the NSs' means of the aural pretest do not (for S-V as well as for N-A). The NSs' means for aural pretests were significantly lower than their production tests as the following table indicates:

TABLE 7.O.1 Aural processing (NS) vs Production tests (NS) means

```
               N      Mean     StDev   SE Mean
Aural         83      48.6     26.5     2.9
Production   330      82.9     23.2     1.3
95% CI for mu AurNS - mu Other NS: ( -40.6,  -28.0)
T-Test mu AurNS = mu Other NS (vs not =): T= -10.80  P=0.0000
DE=  115
```

In the aural processing test the subjects were required to process agreement forms in addition to meanings in order to arrive at the correct answer (see section 5.4.1 in Chapter 5), a task that immersion learners are not used to doing, regardless of whether they are native speakers or not. One has to remember that immersion learners are primarily used to process language for meaning. Since the NSs' aural processing scores were so much lower than their production scores, and the NNSs's aural pretest scores were parallel to their production scores, it is difficult to say whether the NNSs' ability for processing language is equivalent to that of the NS. Rather, the results seem to indicate that both groups had difficulty interpreting language which required them to pay attention to the form in addition to meaning. As mentioned in section 5.4.1, this task was tested on six adult NSs, who had no apparent difficulty with the task.

The following examples from the aural processing tests illustrate the problem of interpretation when the learner was required to interpret the text according to the target forms as well as to the meaning. The learner was asked to provide something that he/she could associate with what was being said (see section 5.4.1):

35) Researcher: *Tienen* una función esencial en fabricar el alimento para las plantas y generalmente son menos *atractivas* que las flores. ¿Qué?

They have an essential role in producing food for the plants and are generally less attractive than flowers. What?

One of the correct answers was *hojas* (NNS, NF2, 59), but some others were given for this question:

a) tallo (stem) (NNS, NF1, 42)
b) raíz (root) (FNS El Salvador, NF1, 50)
c) agua (water) (USNS, F1, 15)

FNS = Foreign-born native speaker
USNS = US-born native speaker

Since there were several possible correct answers to this task, the learner had to interpret the given sentences by paying attention to the plural verb and the feminine and plural adjective. In the examples above the learner in a) failed to pay attention to the plural verb *tienen* (they have) and to the gender and number (feminine and plural) form of *atractivas* (attractive). The learner in b) got the gender right but failed to pay attention to the plural verb *(tienen)* and the plural in the adjective *(atractivas)*. The learner in c) failed to pay attention to the plural verb (*tienen*) and to the adjective (*atractivas*).

In the next example, learners had to interpret the oral text from the morphological ending of the verb to associate the action with somebody:

36) Researcher: *Redactó* los pasos para el experimento de ciencias.
¿Quién o quiénes?
(She or he) wrote the steps for the science
experiment. Who?)

The correct answer, which many students gave, was *la maestra* or *profesora* (the teacher), or el *estudiante* (the student). But others missed the correct interpretation:

a) *semillas* (seeds) (NNS, F2, 21)
b) *niñas* (FNS, F1, 18)
c) *cientistas* (IL) (USNS, F2, 14)

FNS = Foreign-born native speaker
USNS = US-born native speaker

In the examples above from both populations, NNS and NS (USNS and FNS), the learners associated the idea with plural forms even though the verb was in the singular form *(redactó)*. This was a verb to which students had not been previously exposed, so that learners had to guess the meaning from the context and interpret the form to arrive at a correct answer (this was one of three unseen S-V contexts on that test). In addition, the NNS learner in a) missed the correct interpretation of the verb altogether.

In sum, the pretests showed that NS outperformed the NNS subjects in all the production tests before FonF instruction started, but not in the aural processing test. This difference in production tests prompted the researcher to analyze the NSs' data separately from the NNSs' data. It is difficult to tell whether NNSs' ability for interpretation was really equivalent to that of the NSs. The NSs' scores from the aural processing tests were significantly lower than from the production tests, while the NNSs' were equally low on both production and aural pretests. More research is needed to evaluate the relationship between grammatical knowledge and interpretation ability in Spanish by immersion learners.

7.1 *DIFFERENCE BETWEEN US-BORN (USNS) AND FOREIGN-BORN (FNS) NATIVE SPEAKERS*

An analysis on the pretest scores comparing the native speakers who were born in the US (USNS) and the native speakers who were born in other countries (FNS) was conducted. This was done because of the relatively low means obtained from gender agreement pretests (table 6.0.1.2) by NSs. Additionally, the researcher observed some variability in the accuracy of responses and some differences between US-born native speakers and foreign-born native speakers on gender agreement in the data (this was also observed in the pilot study). Although the results indicated that there was no overall significant difference between USNS and FNS, significant differences were found in the oral tree pretest and close to a significant difference in the oral item pretest (see section 6.0.2).

The following samples from the data illustrate the difference between the two NS groups in adjectival gender agreement.

37) Example from the data for the oral item pretest on gender agreement

USNS

*Las fresas son yo no las fresas son sabros**o**s. Yo me gusta los fresas porque son sabros**o**s. Son roj**a** y son sabotos**o** (F2 group, 12)*

*Las fresas no son redondas pero son agri**o,** un poquito agri**o** y jugos**o** y dulce. A mi me gusta porque sabe bueno cuando metas un mordisco la segunda vez (F2 group, 27)*

FNS

*Las fresas son medias como un corazón. Son roj**a**s y a mí me gustan porque son ric**a**s y es suave muy suave (F1 group, 18, Perú).*

*Las fresas son roj**a**s. Tienen semillas chiquit**a**s blanc**a**s encima y tienen helados y las fresas son roj**a**s de adentro y roj**a**s de afuera. Las fresas son muy ric**a**s y son delicios**a**s y sabros**a**s. Tienen un sabor muy rico para comer (F1 group, 17, El Salvador)*

38) Example from the data for the oral tree pretest on gender agreement

USNS

*Hoy es otoño y yo soy un árbol mis hojas son verde, naraja**o**, amarill**o**, café (F1 group, 15)*

FNS

> *Y los pajaritos se paran en mi árbol y en el verano tengo hojas verdes y y hace mucho calor y en el otoño mis hojas son ah cafés, anaranjadas, rojas y amarillas (NF2, 62, Bolivia).*

The examples above from the tests which indicated a significant or close to a significant difference show how the URNS make errors in gender agreement (and in number agreement) on the marked feminine form for *fresas* and *hojas*, while the FNS do not show those errors in their speech. It is difficult to determine the reason for this discrepancy without further research. One possible reason could be developmental. Research seems to indicate that adjectival gender agreement is acquired later than both number agreement and article agreement in L1 (Pérez-Pereira, 1991); thus, USNS learners might be still developing these forms (although significantly later than NSs in their own country). Other factors to take into account is the level of education of the parents at home and, especially, the learner's degree of language dominance (English or Spanish) (Valdés, 1995). More research into this difference is necessary to arrive at any definitive answers.

7.2 *ANALYSIS OF THE NNS' KNOWLEDGE OF THE TARGET FEATURES BY INSTRUCTIONAL GROUPS BEFORE INSTRUCTION*

Although the results from MANCOVA indicated that overall there were no significant differences among the groups at the start of the experiment, three out of the fourteen pretests showed significant differences among the instructional groups before instruction. The control groups appeared to outperform the experimental groups in their knowledge of S-V and N-A gender agreement on the S-V tree, S-V seed, and gender riddle pretest. This difference was taken into account by using the pretests as covariates for further analyses (MANCOVA). The possible reasons for these differences in favor of the control groups could be developmental -- the control group was a grade ahead of the two experimental groups (5th grade vs. 4th grade), which might have allowed for more time to develop grammatical accuracy or might have helped the students perform better on the tasks. Another possible reason could be the nature of the tests; the oral tree and the written seed tests were the most open-ended tests, which allowed for the most variability in the data. The written seed test was problematic enough, both for gender and for number agreement (see section 6.2), to be eliminated from the analysis.

7.3 *EFFECT OF FONF INSTRUCTION ON THE NON-NATIVE-SPEAKING SUBJECTS*

The response to this study's question number one, whether it was possible to integrate FonF instruction in an experiential setting, was answered affirmatively. The teacher gave incidental, implicit negative feedback on N-A gender and number agreement in one of the experimental classes and on S-V agreement in the other. The teacher was instructed to provide feedback at any time that the error was detected during group work, oral reports and individual interaction with the teacher. In reality, though, the teacher could not provide feedback to the students all the time, especially if they were working in groups; the teacher could not be present at all the groups at the same time. On the whole, the recast was provided without any apparent interruption to the flow of the content instruction. Although students were never encouraged to repeat the recast, occasionally some students repeated it, especially during oral reports (research has shown that students tend to repeat after a recast (Doughty, 1993); repetition in these cases was not the focus of instruction, because no effort was made on the part of the teacher to have the student focus on the repetition as was done by Doughty and Varela (1998). The following examples from the data illustrate the way feedback was provided during different science experiments (see translation in the appendix).

39) Experiment to determine the volume of a stone

T: *escriban: cómo hallar el volumen de una piedra*
léenme su predicción

S1: *Sra. G.* ***necesita*** *ir al baño*

T: ***necesito****, ¿no?*
ya, por favor pasa

S2: *[yo* ***puede*** *leer*

T: *cómo hallar el volumen*

con permiso, el título de este experimento es cuál es el objetivo

S2: *[yo* ***puede*** *leer*

T: *yo* ***puedo****, ¿no?*

cuál es el objetivo de este experimento, qué es lo que estamos tratando de averiguar, de descubrir?

S3: *cómo medir el volumen*

T: *cómo medir, o como hallar, como encontrar....*

In the example above, the teacher was conducting a science experiment in the F1 class (the class which received FonF instruction on S-V agreement). Both examples happen to be of inaccurate utterances which are not directly related to science. The first asks for permission to go to the bathroom (a very frequent request) and the second asks for permission to read (notice that the teacher at first did not notice the error, or else perhaps was unable to pay attention to the student's request; see below for discussion of missed opportunities for feedback). In both examples the students use the unmarked third person singular form of the verb (*necesita, puede*) instead of the correct first person singular. After the teacher's feedback the students do not repeat the form; the flow of instruction continues uninterrupted.

40) Experiment to determine the absorption performance by paper towels

T: *sí, más áspero*

T: *¿cómo se siente ésta?*

S4: ***livianito***

T: ***livianita**, ¿no?*

S5: *para medir la absorción la toalla de papel tienes que ver cual toalla de papel es más **grueso***

T: *es más **gruesa**, ¿no?*

S5: *más **gruesa***

T: *ya*

S5: *después de que es más **grueso***

*[más **gruesa**, ¿no?*

S5: ***gruesa**, es la que más absorción*

In the example above the teacher gives feedback in gender agreement in the N-A group which received instruction in adjectival gender and number agreement. Student 4 uses the unmarked masculine singular form of the adjective, instead of the marked feminine form. Content instruction continues immediately after the recast (*livianita, no?*). Student 5 also uses the unmarked masculine singular form (*grueso*) where the context requires a marked feminine form (*gruesa*). Although this student repeats the recasted form, she immediately makes the error again, which gets recasted one more time. The student repeats the recasted form mechanically and in a low voice, without any apparent acknowledgment to the teacher that she has paid attention to the recast by making eye contact or by any affirmative movement of the head or by any other signal which would indicate an acknowledgment of the repetition, and instruction continues.

Even though it was possible to integrate FonF instruction in an experiential setting, no main effect from instruction was revealed in the analysis; thus, Hypotheses 1 and 2 could not be rejected. Results from repeated measures multivariate analysis using the pretests as covariates (MANCOVA) indicated that there were no significant gains at testing times (immediate and delayed post-test) either in oral or written production and interpretation ability. Furthermore, results showed no significant differences among the groups (F2, F1 and NF groups).

The results indicate, however, that there was a slight improvement from pre- to posttest in S-V and N-A agreement in the oral item and in the aural processing test (see tables 6.3.1 and accompanying graphs); this improvement remained stable only in the oral item dposttests.

While feedback proved to be incidental and subtle enough so as not to interfere with the flow of content instruction, it might have been too subtle to make enough of an impact or to have sufficient effect in destabilizing the immersion learner's linguistic knowledge. Research has shown that immersion learners reach a plateau in their grammatical development (Genesee, 1987; Snow et.al, 1989). Additionally, according to Schmidt (1990), for learning to take place, the learner must notice the form in the input and/or notice the "gap" between his/her utterance and that of the teacher or NS (Schmidt and Frota, 1986). It is questionable whether the learners in the present study noticed the forms in the feedback, especially since they were not encouraged in any way to repeat the form and they were not purposely encouraged to notice the form by calling their attention to the error either by the teacher's repetition of their inaccurate form (Doughty and Varela, 1998) or by adding a question such as *what?* after the inaccurate form (Muranoi, 1996) before feedback was given. It is apparent that NNS learners consistently failed to notice the "gap" between their utterances and the teachers' or their NSs' peers' utterances before instruction; implicit, incidental feedback did not seem to have an effect in encouraging the learner to notice the "gap". Furthermore, the tests were completely content-based in appearance, so that learners at no time were aware that they were even being tested on linguistic forms. Thus, while this provided for natural testing conditions, at the same time it never encouraged the learners in any way to pay attention to the forms as is the case of so many other language testing situations.

The preliminary diagnostic results (7.0) indicate that the immersion learners in this study had apparently not developed morphosyntactic knowledge for subject-verb and noun adjective agreement before instruction. In other words, they had not acquired analyzed knowledge of these forms at the time that this study began. According to Bialystok (1991, 1994), a learner has achieved analyzed linguistic knowledge when he/she can use unanalyzed or semantic knowledge and link it to a syntactic form or to a system which links certain forms into a category. If language is assigned a mental representation, then the processing component by which language becomes explicit, structured and interconnected, is called the process of analysis of linguistic knowledge (Bialystok, 1991b). According to Bialystok, linguistic knowledge develops out of implicit representations we have assigned to the world. Immersion learners, as Swain (1985) demonstrates, have extensive unanalyzed, implicit knowledge because they are exposed to vast amounts of comprehensible input. However, they need to be pushed toward processing this input, not only semantically but also syntactically. Although the immersion learners in the experimental groups received implicit feedback on the target forms every day for six weeks, the effect was not substantial enough to show significant differences between the experimental groups and the control groups. These results suggest that immersion learners were unable fully to benefit from the feedback, perhaps because they lacked prior systematic linguistic knowledge which would allow them to integrate the feedback and to link it to a system of categories. On the other hand, implicit and incidental feedback by itself might not be sufficient to push the learner to process the forms syntactically or to change the learner's established semantic processing and unanalyzed linguistic knowledge.

The provision of incidental and implicit FonF instruction in the immersion program presented several problems. The overriding problem was the amount of feedback the teacher provided (see tallied data in the appendix and the results in Tables 6.8.1, 6.8.2, and 6.8.3). Results from tallying the feedback from audio-taped data indicate that the teacher provided only 63% of feedback in S-V and in N-A gender agreement errors and 69% in N-A number agreement errors. The results indicate that the teacher missed 37% of opportunities to give feedback in S-V and in N-A gender agreement and 30.55% of opportunities in N-A number agreement. Additionally, the teacher's feedback targeted some non-agreement forms; 25.68% of verb-related forms; 29.57% (gender) and 26.47% (number) of noun-related forms. These results would indicate that learners might not have benefited sufficiently from the feedback because it was not provided in sufficient amounts. More importantly, the percent of feedback provided indicates that the teacher was not *consistent* in providing feedback. This inconsistency probably contributed greatly to the results for effect of instruction; one would expect that if the learner hears an error in a target feature corrected *every time*, the learner might begin to notice the error and the feedback.

Example 39) above illustrates how the teacher did not hear the learner's inaccurate *yo puede* the first time. Often, because of group work, the class became noisy, which made hearing the errors more difficult for the teacher. Other times, the teacher was paying special attention to the content, which probably detracted from her ability to listen for form. Additionally, the teacher was unable to correct the errors in many of the groups because she was not present at the time the error occurred. The following examples from oral reporting illustrate instances of missed opportunities where the teacher failed to give a recast to correct the error. In all the cases below the teacher continued with the instruction by commenting on the content, or, in the case of group-work (example 43), the teacher did not hear the utterance.

41) *Tiene partes* ***caliente*** *ya que la energía del calor va por todas partes.* (lack of N-A number agreement, intended meaning: plural) (topic of heat distribution)

42) *Con dióxido de carbono, energía solar, minerales y agua se mezcla y* ***crear*** *azúcar para su propio*

alimento y.... (lack of S-V agreement, intended meaning: third person) (topic of plants and flowers)

43) *¿**Necesita** decir **puede** colocar ésto?* (lack of S-V agreement, intended meaning; first person singular) (topic of rocks)

44) *Es un flor **redondo**, tiene un tallo verde.* (lack of N-A agreement) topic of flowers and plants)

In all the above cases the teacher missed the opportunity to give feedback. Example 43) is an utterance produced during group-work when the teacher was engaged working with another group. Additionally, although the researcher's intention was for the teacher to provide feedback on *one* target form at a time in the hope that this would help the learner notice the form, the teacher mistakenly also provided feedback on non-target forms. Instead of S-V agreement, the teacher at times corrected errors in verb tense and aspect, problems in the use of *ser/estar*, on adjectival participles wrongly interpreted as verbs, or gave N-A agreement treatment in the S-V class or viceversa. Additionally, the teacher sometimes corrected a correct utterance. The following phrases taken from the F1 (S-V) treatment group data illustrate this problem:

The learners were reporting on group projects done in class:

45) Food-chain project: learners reported on a big poster made in their group.

S: *yo **está** haciendo*

T: *yo **estaba**, ¿no?*

46) Experiment to measure the volume of a stone.

S: *la agua **cubierta***

T: *la agua **cubierto**, ¿no?*

47) Experiment to determine the water's temperature

*S: Nosotros predicimos que el agua va a ser 50 grados y la realidad **está** que el agua es 40 grados.*

T: **es**,¿no?

In example 45) the teacher corrected the inaccurate verb, which should have been *estoy* to agree with the subject, with *estaba*, which was the correct aspect/tense that the teacher wanted to hear in a report about an experiment. However, there was no S-V agreement in that correction and as such it was also a missed opportunity. In example 46) the teacher corrected the student's utterance by converting the feminine participial adjective to masculine. This is problematic for the present study for two reasons: first of all, the learner's use of the feminine participial adjective was correct and required no corrective feedback; and second, the treatment in the F1 group, where this feedback was provided, was on S-V agreement, not on adjectives. The teacher perhaps became confused because of the presence of a participial adjective rather than of a verb. This example illustrates the difficulty the teacher had in providing the right feedback . Finally, example 47) illustrates how the teacher corrected the inappropriate use of *estar* (to be), which was not a correction in S-V agreement.

The teacher in the present study had difficulty providing feedback on gender agreement at first, because she had difficulty identifying the adjectival form and she herself was insecure about gender agreement in some adjectives[1]. The teacher often corrected article-noun agreement instead:

48) S: *Es **un** flor de papel, y tiene hojas **largo.***

T: *Es **una** flor, ¿no?*

Example 48) is in reference to an activity in which the children described a flower they made out of construction paper and other colored paper. The teacher provided non-target noun-article feedback (even though this was also in agreement) and failed to provide adjectival gender and number agreement feedback instead (the student should have used the feminine, plural adjective *largas* instead of the masculine singular *largo* to agree with the plural word *hojas*).

The difficulties illustrated above point to a major problem about providing feedback in the immersion program. Teachers in immersion (even if they are native speakers) are not language teachers or linguists who know how to identify grammatical structures. They are content teachers who speak the second language, and not always entirely accurately either. It is, therefore, difficult for them to provide feedback on grammatical structures.

More importantly, teachers in content-based classes find it difficult and/or are not used to giving *consistent* grammatical feedback. Sometimes opportunities for feedback are present but the teacher might miss them, because she is busy providing instruction on the content and managing discipline in the classroom at the same time. The teacher in this study sometimes missed an opportunity at first to give feedback but was able to provide feedback if the error persisted. This points to how inconsistent teacher's feedback can be:

49) Experiment: how to measure the volume of a stone

S3: Para medir el volumen de una piedra que es redonda y sólida
    pone unos mililitros de agua y después **poner** la piedra...
  ...está el numero de mililitros de agua que tú **pone** adentro

T: [**pones**, ¿no?

S3: que tu **pones** adentro de la probeta graduada

S3: éste es el número de mililitros que la piedra **mida**.

T: [**mide**, ¿no?

Student S3 belongs to the group which received FonF instruction in S-V agreement. She uses the unmarked third person singular (*pone*) instead of either the first person singular or plural, (*pongo* or *ponemos*) or the second person singular (*pones*), any of which would be appropriate for the context. The student continues in her report by using the infinitive (*poner*) where the context again calls for either the first person singular or plural, or the second person singular. The teacher fails to provide feedback on these errors until the third time the inaccurate verb form is used. One reason for this omission on the part of the teacher might have been the fact that there was no pronoun preceding the verbs in the first two uncorrected forms, while the correction followed a verb preceded by the pronoun *tú*, an error more salient to the teacher than the other two. One has to remember that teachers in these programs have been listening to the learners' errors for a long time and have become less sensitive to these errors than the average native speaker or a language teacher would be.

Another problem for teachers in content-based classes is the issue of *how* to give incidental implicit feedback. Should activities be pre-planned so as to elicit the target forms (Doughty and Varela, 1998) or should feedback be provided without pre-planned activities, as the need arises during normal content instruction, as was done in the present study? This investigation suggests that ideally, pre-planned activities might be more beneficial for feedback to be effective because one would ensure that the target forms arise every time, which was not always the case, especially for gender agreement, in this study. The teacher reported that there were fewer opportunities to provide feedback on N-A gender agreement than on S-V agreement during science class. The audio-taped data reflects this: table 6.8.1 shows 129 target errors in S-V, 79 in N-A gender and 36 in N-A number agreement. The researcher believes that the number of errors is directly related to the number of opportunities for the form to arise.

While pre-planned activities might be useful, the reality of coordinating content instruction in conjunction with opportunities for grammatical feedback might be a difficult task for the content instruction teachers because of their lack in linguistic preparation mentioned earlier. Immersion teachers might benefit from some linguistic education similar to that required by ESL teachers. FonF is a valuable concept, but the teacher has to be linguistically ready to take advantage of the opportunities for FonF instruction. It was apparent that the present study's teacher had difficulty identifying the feature of agreement -- she sometimes gave feedback on verb tenses and on aspect even though the researcher pointed out to her that this would confuse the students. Sometimes she corrected article and noun genders even though the researcher pointed out to her that only noun-adjective agreement would be considered for feedback (the researcher agreed to accept the noun gender correction only if it was accompanied by adjectival agreement correction). Teachers need training in how to integrate the content instruction they provide with language instruction. Unless these teachers receive special education in the grammar (syntax, morphology and phonology) of the language they are teaching, and in FonF techniques, it might be very difficult to try to implement any type of FonF instruction in these programs (the teacher in the present study needed and requested constant coaching from the researcher on how to give FonF implicit and incidental feedback throughout the study). In debriefing, the teacher expressed that she found it very difficult to give consistent FonF feedback for six weeks.

In sum, this research shows that FonF instruction can be integrated into a predominantly experiential approach such as the one found in the immersion program under investigation without jeopardizing the flow of the content instruction. However, the results from this research indicate that implicit and incidental feedback is difficult for the content teacher to implement. The results from the feedback analysis indicate that only 63% (S-V and N-A gender) and 69% (N-A) number) of target errors were corrected by feedback, which might have been a contributing factor for the low effect of instruction obtained for NNSs.

Finally, while FonF is an important language teaching approach and may appear to linguists and to some language teachers easy to implement, this might not always be the case for content teachers. Teachers in experiential approaches where content is the focus of instruction and communication at all costs is the main objective might need education and/or training in how to implement FonF techniques in these classrooms. Furthermore, they might also need linguistic education which may help them become sensitive to their students' linguistic needs.

7.4 *ANALYSIS OF FEATURE DIFFERENCES: N-A GENDER AGREEMENT, N-A NUMBER AGREEMENT AND SUBJECT-VERB AGREEMENT* (NNS)

Table 6.7.0 (see Chapter 6) shows significant differences from comparing the target features in the two treatment groups (F2 and F1) before instruction. The means indicate that the difference is due to the N-A number agreement feature (72.94 number vs 57.05 gender and 57.82 S-V). This result would indicate that learners in the experimental groups had acquired the feature of N-A number agreement more easily than that of N-A gender and S-V agreement by the time this study started. This would be in accordance with

Krashen (1982), who considers number agreement an "easy rule" as compared to more complex rules which involve WH-movement, for example. Also, English nouns are marked for number in English but not for gender; thus, number is a more familiar concept than gender to the English speaking learners. Finally, number has more communicative value than grammatical gender, which is for the most part arbitrary in Spanish. These results echo Plann (1979), who found in her diagnostic study of learners in Spanish immersion that students had more problems with gender agreement than with number agreement. The results also agree with VanNaerssen's (1986) order of acquisition, which shows the acquisition of number agreement appearing earlier than that of gender agreement.

Nonetheless, "meaningful morphology" in the verb-phrase was not acquired more easily than "non-meaningful" morphology in the noun-phrase before instruction. This would contradict VanPatten's (1994) theory of acquisition of -ing, -ed and -s. A possible reason for this finding might be the fact that S-V agreement in English has very small scope, applies to third person present only and, more importantly, is a redundant feature (Doughty and Williams, 1998; VanPatten,1994); while S-V agreement in Spanish has very broad scope since it applies to all persons, has great surface form variation since it is morphologically diverse, and has high communicative value. Immersion learners, however, appear to be neither aware of the rule's broad scope in Spanish, which we see from their predominant use of the unmarked form, nor of the rule's high communicative value. Noticing those characteristics would make the learning of S-V agreement rule in Spanish easier.

However, Hypotheses 3 and 4, that the gains from FonF instruction in number agreement will be higher than the gains in gender agreement, and that the gains in "meaningful morphology" in the verb-phrase will be higher than the gains in "less meaningful morphology" in the noun phrase, can not be supported. Since the overall effect from instruction was not significant, it is not surprising that the difference in feature gains was not significant either. Apparently, the amount of implicit feedback was not sufficient to encourage the learners to notice the target features' properties. Still, a comparison of the feature gains by the instructed subjects suggests that subject-verb agreement, or meaningful morphology, obtained slightly better results, although not significant (at least they were on the positive side), than N-A agreement or non-meaningful morphology which indicated losses.

These results would be in accordance with the predictions from Hypothesis 4. Still, since the differences are not significant, Hypothesis 4 is not really supported. S-V agreement in Spanish is most likely not as "easy" a rule as Krashen (1982) thinks it is for English, nor as VanPatten (1994) makes it appear. The learner of Spanish has to acquire a broad rule which reflects a complex morphological system, which, as this study shows, is not easily acquired. The results indicate that the means for number agreement appear to be somewhat lower than for gender agreement (see table 7.4, below) which would not be in accordance with Hypothesis 3. However, since number agreement scores were significantly higher than those of gender and S-V agreement scores in the pretests, it would not be surprising to see a "ceiling effect" on the number feature before instruction.

TABLE 7.4 FEATURE GAINS

Features	Means of gains
S-V	4.17
N-A gender	-0.2
N-A number	-2.95

7.5 *MARKEDNESS EFFECT*

Hypothesis 5, that feedback which includes an emphasis on marked forms will show gains (if any) in marked and unmarked forms, can not be supported since no significant effect from instruction was found in this study. The tapes from recordings in class during feedback sessions indicate that most of the teacher's feedback *was* on the marked forms, that is, feminine and plural forms for N-A agreement and all subject persons other than third person singular for S-V agreement (see earlier examples). The slight improvement noticed in two of the tests for S-V and N-A gender agreement (oral item and aural processing tests) might indicate that markedness in combination with feedback could have a positive effect, provided feedback would be given consistently throughout a certain period of time.

7.6 *NATIVE SPEAKERS (NS)*

Analysis of the pretests indicated that NSs scored higher than 80% on N-A number agreement and on S-V agreement, but not on gender agreement (65.7%). Results also indicate that NSs scored significantly higher than NNSs in all the production pretests. Results indicate that no significant effect of instruction in any of the features was found. While this was to be expected for S-V and N-A number agreement, it was not necessarily so for gender agreement.

Similar to the NNSs' case, though, the amount of feedback was probably not sufficient for NSs to notice the gender agreement forms. NSs especially would not pay attention to form, since on the whole they do not appear to have problems with other forms. They would, therefore, benefit from instruction which would help them pay attention to their weakness in adjectival gender agreement. The literature on NSs' of Spanish in the US concentrates mostly on the issue of standard vs non-standard speech and on the lack of literacy skills among Spanish speakers (Merino et al., 1993; Valdés, 1995; Valdés et al., 1981). Research is needed to evaluate and find ways to best instruct NSs in problematic Spanish syntactic issues such as adjectival gender agreement.

The results indicate significant differences in the written S-V seed test for native speakers where the controls F2 and NF1 outperform the F1 treatment group. These results are probably related to the nature of the test (see section 7.7 below).

7.7 EVALUATION OF THE TESTING INSTRUMENTS

In spite of the lack of significant results from instruction, Tables 6.3.1.1 to 6.3.1.4 show a slight trend for improvement in the means of the NNS experimental groups in two of the tests: oral item test and aural processing test, both for N-A gender agreement and S-V agreement. These two tests happened to be the most discriminating among the target forms, as compared to some of the other tests, which were more open-ended. In the oral item task students were prompted by a pronoun or by a noun which forced them to use the target features in order to complete the tasks (see section 5.4.1 and 5.4.2.) and the nature of the task forced the students to use all the target features (task essentialness, Loschky and Bley-Vroman, 1993). In the oral item gender test , the experimental group's mean showed a slight increase from pre- to post- and delayed posttests (31.8, 38, 42, respectively). These results would indicate a slight trend for improvement in gender agreement that did not decrease in the delayed post-test. The same trend is seen by the experimental group in the S-V agreement oral item verb test (51.7, 59.3, 57.2). The aural processing test also required the students to process the form in addition to the meaning; thus, this task also satisfied the task essentialness condition (Loschky and Bley-Vroman, 1993). The means from the aural processing tests (gender and S-V) show some improvement between pre- and post- but decline in the delayed post-test for gender agreement (41.4, 53.8, 26.7) and remain stable in the delayed posttest for S-V agreement (20.3, 37, 34). Thus, if FonF instruction had resulted in significant gains, these tests would have most likely shown that gain since learners had to produce or process the target agreement forms to complete the task. There is no clear explanation for the decline in the aural gender delayed posttest.

The written puzzle and the written riddle test (see section 5.4 and appendix) for the most part also provided a generous amount of target forms. Some variability existed because of the more open-ended nature of the tests. A few students didn't exactly follow the instruction to use all the words provided in the puzzle test and to give at least two characteristics for every fruit in the riddle test. On the whole, though, the data showed that these tests satisfied the condition of task essentialness (Loschky and Bley-Vroman, 1993). The oral tree task obtained a good amount of target forms also. This task satisfied the condition of task naturalness (Loschky and Bley-Vroman, 1993) because of its more open-ended nature. Students were encouraged to talk about a certain topic which the researcher hoped would elicit the forms, but they were not really forced to use the target forms in order to complete the task. For the most part, students elicited the target forms in the tree task. The written seed test was perhaps the weakest in eliciting the target forms and the most problematic of tests. Although students were guided with suggestions on how to complete this task, they did not always use many verbs or adjectives. As a result, this task provided less data than the other tasks. In this task, in particular, students often resorted to using the unmarked default forms in contexts which required marked forms. The use of unmarked, default forms could have inflated the data somewhat, thus reducing the chances for analysis. Also, students sometimes provided only one sample of the target feature on this test, which if correct, resulted in perfect scores. This task was so problematic that it had to be eliminated from the gender and number analysis. Additionally, results from the native speaker's data analysis indicates that the written seed test is the only test (S-V agreement) with a significant effect of instruction, which happened to be in favor of the two control groups (see Tables 6.6.1 and 6.6.2 and graph on figure 27).

An additional problem with the open-ended tests (seed, and tree) was that it was difficult to prevent the learner from producing adjectival forms with neuter gender such as *verde* (green) or *grande* (big) on these tests. As a result, some adjectives could not be analyzed for gender agreement.

Examples from the different open-ended tests in the data follow (see appendix for sample tasks and for translations).

50) Written Puzzle posttest (S-V agreement)

Learners had to report on a science experiment conducted in class. They were asked to use all the words provided for them on their test sheet:

> *Nosotros están estudiamos un experimento con plantas. Los materiales que mis compañeros y yo necesitan para el experimento son tijeras, colorante, agua, vasos plasticos y un tallo. Primero la maestra corta un tallo. Segundo, tú poner el agua en los vasos plasticos. Tercero, necesita poner 20 gotitas de colorante en los vasos. Despues poner el tallo en el vaso y el tallo obserban el colorante y cambia a este color (NNS, NF2, 55).*

The example above provided a variety of verbs for analysis of S-V agreement. This student used all the words from the puzzle. In general, most essays were of comparable length to the sample above.

51) Written seed posttest (semilla)

> *Soy una semilla de "Poison Ivy". Yo necita agua y sol para crecer. No tienen que quidan a nadie. Yo tiene un venom. Yo tiengo pequeñas semillas para dispersar. Yo va a ser "Poison Ivy" cuando creces. Yo voy a ser verde con rojo. Solo tienen los raices y el parte de Ivy.*
> (NNS, NF2, 53).

The example above provided several S-V and a few N-A agreement forms (necita (IL for necesita), quidan (IL), tiene, tiengo (IL), pequeñas, verde, rojo, tienen), one of which could not be analyzed for gender agreement (verde).

52) Written riddle posttest (adivinanza)

1. Las manzanas
   ¿Que es rojo y tambien es verde y poede usar en salada de fruitas?

2. El durazno
   ¿Que es un fruita anaranjado que tiene un pit en el.

3. Las uvas
   ¿Son rojos o morados y son pequeños y se puede comprar en grupos?

4. Las fresas
   Es un fruita rojo y tiene semillas alrededor de el y es asido.

5. Los limones

¿Es amarillo y asido y se ve con un /?/ y puede poner por decoricion?
(NNS, NF1, 36).

This task originally was intended to test number and gender agreement. However, number agreement had to be eliminated from the analysis because it was not always clear to the researcher whether an error was due to lack of knowledge in number agreement or due to the nature of the task. Students might have been inclined to write a riddle in singular rather than plural form, in which case it was difficult to determine whether this was clearly a number agreement problem. The first response above illustrates this issue. The student described one apple rather than several, and since the sentence was well formed (singular copula) (ignoring the IL forms), it would have been difficult to code the number agreement as 0. This student gave at least two adjectives for each fruit in each case, except for number two; thus, for the most part the task elicited the intended gender agreement forms.

53) Oral tree posttest

> *Soy un árbol. El viento, la lluvia, sol, se ayuda a mí para que crece. Los colores en el primavera son verde, claro y, y.. y, personas se sienten cerca de mí y.. y.. y en el verano son muy verde y en el otoño se cambian de colores colo/naranjado, amarillo y verde, verde, los pájaros vienen en el verano y el otoño y la primavera para sentarse y hacen bebes pero en el invierno se van y la nieve se viene, yo no tengo hojas después y tengo frutas en el primavera de vuelta y pero en el invierno no es muy bien porque es frioso y no nadie que hablar, no hay nadie que gritar ni, pero niños vienes en el nieve a jugar y, se juegan con el nieve y se tiran a mí y otros con ellas pero yo soy un árbol y no puedo moverme.. Mis ramas son muy largo y algunas son cortas..y tiene fruta de vuelta y son muy bonitas.*
> (USNS, F1, 12).

While the example above shows how this task elicited several target forms, it also illustrates some of the problems with the open-ended tasks. The color green (*verde*), for example appears several times. As noted earlier, it can not be analyzed for gender agreement. Furthermore, not all persons and not a great variety of verbs are used in order to assess S-V agreement properly. Many of the verbs are copulas, which learners appear to use formulaically. (Notice that the sample above comes from a USNS, N-A gender agreement errors are apparent). Nonetheless, this task provided a rich sample of spontaneous speech.

7.8 EVALUATION OF THE PROPOSED THEORIES ON COGNITIVE PROCESSES

Finally, the data from the tests show different cognitive processes are involved in the interpretation and production of the target agreement forms. Mellow and Cumming (1994) argued that a preceding concording form can prime the appearance of a concorded grammatical form when sufficient attentional resources are present. Priming seems to take place in Spanish as well. The oral item tests showed that when NNSs talked about a plural noun, they often used the plural form of the adjective at first. However, when they continued describing the same noun, but the adjective was not adjacent to the noun anymore, they often switched to the singular form of the adjective. This phenomenon seemed to occur primarily among the NNSs, which indicates that it is most likely an L2 developmental problem, rather than a problem of memory. Example from a delayed posttest observation follows:

54) *Los fresas son* ***rojos****, y yo te gusta porque, porque ay, un*

poquito ***ácido.***
(NNS, F2, 20).

Van Patten's (1990, 1994) theory that learners process lexical items before grammatical items and meaningful morphology before non-meaningful morphology was in part supported. Results from the aural processing test indicated that NSs as well as NNSs interpreted the questions on the test to a large extent by processing the meaning and not the forms of the utterances. On the other hand, analysis of the difference among features before and after instruction show that meaningful morphology such as S-V agreement in Spanish is problematic for learners. However, number agreement, which is somewhat more meaningful than gender agreement and is a more familiar concept for the English speaker, had been better acquired than gender agreement before FonF instruction. More research needs to be done on the acquisition of Spanish agreement to settle the issue of attentional cognitive processes.

7.9 CHAPTER SUMMARY

This chapter discussed the results presented in Chapter 6. The results from a preliminary comparison of NNS learners and NS learners indicate that NNSs scored significantly lower than the NSs in both oral and written production ability but not in aural processing ability.

The question of whether it was possible to implement implicit and incidental FonF in the immersion classroom without interrupting the content instruction flow was answered affirmatively. Hypotheses 1 and 2, however, can not be rejected. The results showed no significant effect of instruction. There was no effect of interaction between testtime and instruction, and there was no difference among the groups in either the posttests or delayed posttests in either production or interpretation ability. The main problem was probably the insufficient and inconsistent amount of feedback provided by the teacher which probably did not sufficiently encourage the learners to notice the forms in the input or to notice the gap between their speech and that of the teacher or their NSs peers. The teacher sometimes missed giving feedback or provided feedback on non-target features, possibly confusing the learner. Provision of feedback by the teacher proved to be more difficult than anticipated by the researcher. The teacher had difficulty identifying the forms at times. Additionally, by her own admission, it was difficult for her to give consistent feedback over a period of time. In an environment where incorrect forms have stabilized over time and where focus on meaning is encouraged at all times, learners perhaps would benefit from a combination of FonF approaches, which might be easier for the teacher to implement, rather than from the single implicit and incidental feedback instruction provided in this study.

Results indicate that learners in the two experimental groups scored significantly higher in N-A number agreement than in N-A gender agreement or in S-V agreement at the start of the experiment. This would suggest that number agreement is an "easy" rule (Krashen, 1982), especially for the English speaker who is familiar with that concept. The effect of instruction, however, showed no significant difference among the features; thus, Hypotheses 3 and 4 could not be supported. Although FonF instruction concentrated on the marked forms, the effect was not significant enough to obtain significant improvement in these forms or, by projection (Zobl, 1983, 1985), in the unmarked forms; thus, Hypothesis 5 could not be supported.

No significant effect of instruction on the NSs' knowledge of agreement features was found. However, a preliminary study of USNSs and FNSs shows a significant difference on one of the tests (oral tree pretest) for gender agreement and a tendency for a significant difference in the oral item test (gender agreement) before FonF instruction. This would perhaps suggest that USNSs are not quite developmentally as ready as their FNSs peers in gender agreement in Spanish. An evaluation of the tests indicates that the oral item test and the aural processing test seemed, on the whole, to provide the better opportunities to elicit or process the target forms than the more open-ended tests (seed, tree, puzzle and riddle), because they satisfied the condition of task-essentialness better.

Finally, Mellow and Cumming's (1994) theory of cognitive processes involved in the acquisition of concorded grammatical forms is supported by the data, while VanPatten's processing theory is partially supported.

7.10 SUMMARY AND CONCLUSION

The present quasi-experimental study examined the effect of implicit and incidental FonF instruction on the knowledge of agreement (N-A and S-V) by 4th and 5th grade children in a Spanish two-way partial immersion program. Three NNS groups were compared for S-V, N-A gender and N-A number agreement before and after FonF instruction; and three NS groups were compared in N-A gender agreement before and after instruction. FonF instruction consisted of incidental and implicit corrective feedback in the form of a recast followed by a tag question. This type of instruction was subtle enough so as not to interrupt the flow of the content instruction in the Spanish science class during which the recast was provided. The objective was to integrate the learners' unanalyzed linguistic knowledge of Spanish agreement with analyzed linguistic knowledge. As such, it was hoped that FonF instruction would encourage the learner to integrate the long established mode of semantic processing with the less familiar mode of syntactic processing. Ultimately, the goal was to lead the learner to language analysis (this does not necessarily mean the learner would know to articulate a rule, it means the learner would know to use the rule and to process or interpret language according to the rule), and to (accurate) control of the target agreement forms in Spanish, which is how language proficiency is operationalized in this study (Bialystok, 1991a, 1994a).

Non-native Spanish immersion learners (similar to French immersion learners) appear to be fluent in the language, but closer scrutiny reveals that they lack accuracy in many grammatical aspects of Spanish. A preliminary comparison between NNSs and their NSs peers in the present study revealed that NNSs scored significantly lower in agreement forms than NS in all written and oral production tests. Thus, the need for integrating (FonF) language instruction with content instruction in experiential settings such as the present immersion program is very real. Ideally, FonF instruction should not interrupt the flow of content instruction in any way. While the present FonF instruction was subtle enough so as not to be intrusive to the content instruction, it did not seem to affect the NNS learners' knowledge of the target forms sufficiently to produce a significant change in their developmental system. More importantly, it probably did not encourage the learners sufficiently for them to notice the forms, or encourage them to process the forms syntactically as well as semantically by making the necessary form-meaning connections.

One needs to ask why the results obtained in this study differed from Ortega and Long's (1997) study in which the same type of recast plus a tag question was used. A close examination of both studies reveals that the only thing that the present study has in common with Ortega and Long (1997) is the use of the same type of recast. There are many more differences than similarities between the two studies. First, the subjects in Ortega and Long's study were adult university students who had previously taken foreign language classes and were probably aware of learning form(s). This awareness most likely helped them notice the target of instruction in the Ortega and Long experiment. The subjects in the present study, on the other hand, were children who had never taken a foreign language class and who were used to process the classroom information for meaning and content only, thus, were not inclined to notice the form in the feedback. Second, the conditions for Ortega and Long's study were those of a strictly experimental environment, while the present study was conducted within the context of a science immersion class where learners heard feedback on the form mixed in with feedback on the content, a much harder task for learners, who are not even sensitive to listening for any type FonF instruction in the first place. Third, the subjects of Ortega and Long must have been aware that they were going to learn a new grammatical form, even if they did not know what this form would be. The subjects in the present study, however, never knew the nature of the experiment, in fact they were not aware that there was even an experiment underway! Fourth, although the researchers in Ortega and Long's study do not specify the amount of feedback provided, it appears that under strictly experimental conditions learners listened to a recast on their earphones 100% of the times an error was produced. Learners in this study, on the other hand, only received 63% of feedback on their S-V and N-A gender agreement errors. Additionally, learners heard other errors being corrected which could have been confusing to them. This leads to the fifth difference, mainly, that in Ortega and Long learners received feedback provided by two linguists, while in the present study learners received feedback provided by a typical immersion teacher, whose focus of instruction and expertise is the content curriculum, not language. Finally, learners in Ortega and Long's study learned about adverb placement and topicalization in Spanish for the first time, while learners in the present study had used the "stabilized" or almost "fossilized" inaccurate forms for five years. The process of having to destablilize the knowledge of a rule and then relearn the rule correctly is most likely a much more difficult and involved process than learning a rule for the first time. Additionally, It is important to note that Ortega and Long caution that their results have not been tested for long-term effect and that their experimental groups were very small (six subjects). In sum, although the type of recast in the present study was the same as in Ortega and Long's study, the experimental conditions, the subjects and the person implementing the feedback were very different. More research is needed in the environment of experiential settings such as the immersion classroom to arrive at any definitive conclusion about the role of recasts.

This study brought to light some of the limitations in implementing incidental and implicit feedback in a strictly experiential setting such as the immersion classroom. One of the limitations appears to be the fact that feedback is not as easy to implement as it may appear. This in turn could have affected the amount of feedback and the manner in which feedback was provided by the teacher, which ultimately could have affected the results. The teacher in this particular study knew that she was participating in an experimental study which required her to give feedback *every time* the target error occurred. Although the teacher was enthusiastic and very eager to provide the feedback every time, the audiotapes show that the teacher missed giving feedback many times and had difficulty identifying the forms at times. The second limitation of incidental FonF instruction is that it is error- or form-dependent. While timing (Lightbown, 1992) the feedback is very important for form-meaning connections to take place, opportunities for incidental feedback might not always be present in the content classroom. This was particularly noticeable in the F2 group, where opportunities for eliciting adjectives were not always available[2]. Language-oriented pre-planned activities might solve this problem; however, as mentioned earlier, this might represent an added burden to the content classroom teacher.

A third limitation of implicit and incidental feedback is its subtleness. Immersion learners are accustomed to process information semantically for the most part. They are encouraged early on to get the message across in any way they can, without provision of feedback on *how* to do this. Feedback, if provided, is predominantly in the content areas; thus, any feedback provided in the upper elementary grades is going to be viewed by students as additional content feedback, especially if this feedback is very subtle and is not preceded by an attention-getting device. Implicit and incidental FonF feedback might be effective in changing established linguistic knowledge when learners have previously, or simultaneously, acquired other means to analyze language. Thus, as forms have stabilized over time, immersion learners in the upper elementary grades might benefit from other types of FonF instruction (input enhancement, input processing, explanation), which, in addition to feedback, might encourage them to develop their cognitive ability for syntactic processing. The aim would be to help the learners notice and, perhaps over time, change some of their erroneous hypotheses about linguistic agreement forms; this process could at the same time be reinforced by appropriate incidental FonF feedback. Additionally, because the immersion learners' attention is focused on meaning exclusively, they would probably benefit from an attention-getting device (Doughty and Varela, 1998; Muranoi, 1996), which will further enable them to notice the form in the recast. In the early grades, on the other hand, similar to children in L1 acquisition, immersion learners might benefit from implicit feedback alone, provided it was received in a **consistent** manner in the classroom. Research shows that L1 children of Spanish process adjectival agreement syntactically already by age four (Pérez-Pereira, 1991). Thus, consistent feedback in the early grades might help the learners notice the forms in the input and encourage them to integrate syntactic with semantic processing early on. Implicit feedback provided by itself might not be powerful enough to *change* the long established and stabilized linguistic knowledge of upper elementary grade students, but it might be sufficient to provide young learners with corrective input against which to test their developing hypotheses. Harley (1998) has demonstrated that second graders can process agreement syntactically in the French immersion program. However, more research is needed to investigate the effect of implicit negative feedback in the lower elementary grades, especially since feedback has been criticized in L1 research for not providing the child with a "source" for the error (Pinker, 1989).

A fourth limitation of integrating FonF instruction in a predominantly experiential approach is the teacher's limited linguistic preparation. Content teachers are not necessarily versed in the linguistic aspects of the language in which they teach the subject-matter. For FonF to be implemented in an immersion program, the teacher has to identify first the linguistic problems, which is not normally done by teachers in these programs. Second, the teacher has to know how to provide and integrate instruction in the identified forms. Most teachers would resort to paradigmatic focus on forms (Swain and Lapkin, 1989) if not instructed otherwise (the teacher in the present study expressed to the researcher that now that she knew what some of the problems were, she was going to give instruction on the forms with the help of index cards, where the students would write out all the forms). To avoid the teaching of forms in isolation, the teacher would need to be educated in the philosophy behind FonF and in ways on how to provide it (which could range from explicit to implicit). Finally, in order to test the effectiveness of implicit FonF, more research is necessary in communicative and content classrooms where the content teacher, rather than the researcher-teacher (Doughty and Varela, 1998; Muranoi, 1996), who happens to be a linguist and knows to take advantage of every opportunity for language instruction, implements FonF instruction.

A fifth limitation of incidental, implicit feedback is the time allotted for instruction. In the present study feedback was given for six weeks during science class every day even though it was originally planned for eight weeks[3]. It is doubtful that results would have been very different from two additional weeks of instruction. However, future research might consider longer time for feedback such as a whole school year to see if this would result in acquisition.

The target features of agreement proved to be problematic enough to warrant special instruction. Contrary to the predictions made, however, target feature comparison between meaningful (verbal) morphology and non-meaningful (adjectival) morphology did not obtain any differences either before or after instruction in the two treatment groups. Furthermore, the prediction that instruction in N-A number agreement would obtain better results than N-A gender agreement was not supported, partly because preliminary results showed that learners had acquired number agreement better than gender agreement prior to the experiment. This was reflected by a high percentage of learners who obtained near-ceiling scores in the N-A number agreement pretests (20% in the F1 group, 42% in the F2 and NF1 groups, and 14% in the NF2 group). Number agreement appears to be "easier" than gender agreement since it exists in English (these and those) and it carries more communicative value than the arbitrary gender agreement forms. The near-ceiling effect on the pretests and the fact that number is an "easier" feature than gender would suggest that perhaps number agreement should not be a target of FonF instruction. Although the rule for syntactic gender agreement appears "easy" enough for feedback to encourage the learner to notice it, this study proved that this might not be so. Learners probably require additional instruction such as input enhancement (Harley ,1998) or opportunities for output (Swain, 1985,1998) to notice and automatize the rule.

The role of markedness in language acquisition is controversial. Although most feedback provided in this study was on marked forms, it did not seem to help the learner in the acquisition of these forms, because the amount of feedback in general was perhaps not sufficient to destabalize the learner's incorrect knowledge of these forms. Another contributing factor might have been the testing of unmarked forms in addition to the marked forms, which undoubtedly must have obscured the results. Additionally, because agreement requires the learner to notice syntactic as well as morphological markedness, it might not stand out as if it were just one or the other, such as relativization (Doughty, 1991; Pavesi, 1986) for example, which is related only to syntactic markedness.

This study has some limitations. One of the limitations is related to markedness. As mentioned above, testing was done on marked and unmarked forms, rather than just on marked forms.

Testing both probably resulted in inflation of correct forms. Harley (1998) resolved this problem by eliminating the unmarked forms from her analysis. However, the researcher in the present study opted not to do that once the study was underway. In the open-ended tests especially, it was more difficult to control for unmarked production of forms (in contexts which required unmarked forms). Results from the oral item tests (S-V) and aural processing test (N-A gender), on the other hand, showed a slight and steady increase (although not significant) between pre-, post- and dpost- tests for the treatment groups in S-V and N-A gender agreement. These tests were the most discriminating among the forms, which might suggest that although the open-ended tests provide very spontaneous and interesting data, they might be less appropriate for the testing of marked grammatical forms than the more controlled tests, which force the student to produce or interpret the marked target form (task essentialness). The testing of unmarked forms might have led to a second limitation in this study which was the near-ceiling effect of some of the pretests scores in the NNS groups, and which could have affected the results: 12.7% for S-V agreement in the NF1 group; 17.8% in N-A gender agreement in the F2 group, 20% in the F1 group, 42%in the F2 and NF1 groups, and 14% in the NF2 group for N-A number agreement (as mentioned earlier, near-ceiling effect in N-A number agreement was probably due also to the fact that N-A number agreement apparently is an '"easy" rule which might not require FonF instruction). Near-ceiling effect could have accounted for only part of the results for S-V and N-A gender agreement, however, because the rest of the data from the NNS pretests indicated that only 6% or less of the scores reached near-ceiling effect (S-V: 0% for F1, 0% for F2, 2.8% for NF2; N-A/G: 5% for F1, 6% for NF1, and 1% for NF2). Additionally, as expected, the native-speaking groups obtained near-ceiling effect for S-V and N-A number agreement in all their groups.

The third limitation was the small number of students in each group. Once the intact classes were divided into native and non-native speakers, the groups became greatly reduced. Additionally, some attrition in a regular elementary classroom is almost unavoidable. Several students were unable to complete a few of the tasks due to learning disabilities, which contributed to the decrease in subjects. The small number of students in each group prevented the researcher from dropping students with near-ceiling scores on the pretests. The fourth limitation was the fact that the non-instructed control group showed higher scores on three pretests (although not in the overall results). This difference might have also affected the results.

NOTES TO CHAPTER 7

1. The teacher sometimes used incorrect agreement such as *la respuesta correcto* instead of *correcta*.

2. Although the teacher had indicated that a large part of the content instruction during which the experiment would take place would concentrate on the study of plants, in reality this was not the case. The subject of plants would have lent itself to opportunities for adjective elicitation, but the pressures of keeping up with the curriculum forced the teacher to detour from this plan. Instead, much of the science instruction during the experimental phase of this study concentrated on heat conduction and electricity, subjects less prone to adjective elicitation.

3. Although feedback was supposed to be given for eight weeks, last minute curriculum constraints in the classroom forced the researcher to reduce treatment by two weeks.

APPENDIX A

LETTER OF AUTHORIZATION

January 13, 1997

Dear Parents/ Guardians:

This is to inform you that your son/daughter has been chosen to participate in a university study. The purpose of the study is to determine the best methods of instruction to improve the immersion program. The students might be possibly video-taped, audio-recorded and interviewed. The researcher will be the only one reviewing these tapes and the information obtained will not affect the student's grade in any way. Additionally, the names of the students will not be published.

I need your permission and authorization to allow your child to participate in this activity. Please sign on the line below **ONLY IF YOU DO NOT WANT YOUR CHILD TO PARTICIPATE IN THIS STUDY.**

If you do not sign this form, your child will automatically participate in the study.

Thank you for your cooperation in this matter.

Respectfully,

Miriam Stein

Georgetown University

APPENDIX B

QUESTIONNAIRE

Nombre: ______________________________

Grado: ______________________________

Fecha: ______________________________

1. ¿Cuándo entraste al programa de inmersión?

   K 1 2 3 4

2. ¿Dónde naciste?

   ____

3. ¿En qué país nació tu mamá?

   ____

4. ¿En qué país nació tu papá?

   ____

5. ¿Qué idioma hablan tus padres entre ellos?

   ____

6. ¿Qué idioma habla tu mamá contigo todos los días?

____

7. ¿Qué idioma habla tu papá contigo todos los días?

____

8. ¿En que idioma respondes tú GENERALMENTE O TODO EL TIEMPO?

____

9. ¿Hablas español con alguien en tu casa que no sea tus padres, por ejemplo, con una ama (nanny) o tu abuelita(o)?

____

10. ¿Te gusta hablar español? ¿Por qué?

____

APPENDIX C

TESTS

ORAL ITEM TEST (S-V, N-A) oriv, orig,orin

Estamos estudiando la función de las plantas. Tú has hecho un experimento en clase con un tallo, ¿verdad?. Todos Uds. han participado en alguna forma en el experimento. Yo te voy a hacer preguntas que tú tienes que responder **con oraciones completas.** Tienes que comenzar la respuesta con las palabras en mayúscula. Comencemos con: **¿Cómo te llamas?**

Responde: ME ....

Palabras que tienes que usar cuando yo te indique:

ácido (sour), suave (soft), áspero (rough), duro (hard), rico (good), amargo (bitter), delicioso, blando (soft), maduro (ripe), redondo, sabroso (tasty).

Teacher's script

¿Cuántos años tienes?

Yo.......

¿Tienes hermanos?

¿Cómo se llaman?

Se ....

1. ¿Qué materiales reuniste para el experimento?

YO.....

2. ¿Qué hizo la maestra con las tijeras?

ELLA.......

3. ¿Qué pusieron Uds. en el vaso?

NOSOTROS........

4. Pregunta a un compañero o compañera, cuántas gotitas echó en el vaso.

¿ CUANTAS .... ?

5. ¿Qué observaste?

YO............

6. ¿y tus compañeros?

ELLOS.....

Ahora continúa respondiendo con oraciones completas:

7. ¿Qué le pasó a la planta que pusiste en el vaso?

8. ¿Como eran las gotitas que pusiste en el vaso?

9. ¿Cómo se volvió el agua después del colorante?

10. ¿Si usas un colorante amarillo, cómo cambiaría la planta?

11. Hay frutos y vegetales que tienen diferentes colores naturales, por ejemplo, EL MANGO ES ANARANJADO y MUY JUGOSO. Yo te voy a hacer preguntas y tú contesta usando cualquiera de estas palabras además de las que tu quieras usar. Por cada fruta usa una de estas palabras y otra más: ácido, suave, áspero, duro, rico, amargo, d elicioso, blando, maduro, redondo, sabroso. Trata de no repetir estas palabras.

¿cómo es la sandía y por qué te gusta o no te gusta?

¿cómo son los tomates y por qué te gustan o no te gustan?

¿cómo son las fresas y por qué te gustan o no te gustan?

¿cómo son los limones y por qué te gustan o no te gustan?

¿cómo es la toronja y por qué te gusta o no te gusta??

ORAL TREE TEST (S-V, N-A) orav, orag, oran

Imagínate que tú eres este árbol. Cuéntame una historia de cómo es tu vida de acuerdo a cada estación. No te olvides de pensar en la influencia de cosas como la lluvia, el viento, el sol, los pájaros, la nieve. ¿Qué pasa con tus hojas en cada estación?, También habla del color de tus hojas, quién te visita, qué haces, cómo son tus ramas, ¿tienes frutos?, ¿tienes flores?, cómo son?, etc. Te voy a dar unos minutitos para pensar en lo que quieres decir. Al final da tu nombre y apellido.

Comienza con: SOY UN ARBOL ....Termina con: MI NOMBRE ES......... y MI APELLIDO ES.........

Primavera

Verano

Otoño

Invierno

WRITTEN PUZZLE TEST (WRITTEN S-V) puzv

Describe el experimento que hiciste en clase con el tallo y el colorante. Tienes que usar **todas las palabras que se muestran aquí.** Anda tachando las palabras a medida que las vas usando. Puedes usar las palabras en cualquier orden. También puedes agregar todas las palabras que quieras.

gotitas colorante

yo maestra tú

nosotros tallo

tijeras gotita

agua mis compañeros

PUZZLE wpv

Nombre:____

Grado:____

Fecha:____

WRITTEN RIDDLE TEST (N-A GENDER) wpgn

Nombre:____

Grado:____

Fecha:____

ADIVINA ADIVINANZA.

Respuesta: *el tomate*

¿Qué es rojo y blando y se usa en la salsa de tallarines (spaghetti)?

Escribe tu adivinanza:

1. Respuesta: *las manzanas*

¿____

____?

2. Respuesta: *el durazno*

¿____

____?

3. Respuesta: *las uvas*

¿____

____?

4. Respuesta: *las fresas*

¿____

____?

5. Respuesta: *los limones*

¿____

____?

WRITTEN SEED TEST (S-V, N-A) wpgnv

USA TU IMAGINACION

Imagínate que eres una semilla. Describe tu vida desde que naces hasta que eres una planta. Habla de:

1. Lo que necesitas para crecer.
2. Quiénes te cuidan.
3. Cómo te dispersas.
4. Lo que vas a ser cuando crezcas
5. Cómo creces y cómo eres, incluyendo tus colores.
6. Cuáles son tus partes.

No te olvides de tomar en cuenta el sol, el agua, el viento, la tierra, etc.

SEED TEST

Nombre:____

Grado:____

Fecha:____

SOY UNA SEMILLA DE

AURAL PROCESSING TEST (S-V, N-A) prvgn

ASSOCIATING IDEAS

TEXT READ ALOUD TO STUDENTS:

Esta es una actividad de asociación. Vas a escuchar oraciones y después de cada oración u oraciones vas a escuchar una pregunta (qué o quién). Tienes que **ASOCIAR** lo que escuchaste con algo o alguien. Puede haber más de una respuesta correcta para cada idea, **pero escribe sólo una respuesta en cada línea.** No te preocupes si no entiendes todas la palabras que escuches, trata de entender la idea principal y no dejes de contestar ninguna pregunta.

Por ejemplo, si digo: van en un autobus amarillo todos los días,

¿Qué o quienes?

los estudiantes, nosotros, los alumnos, no?

si escuchas:

Participan en la polinización de las plantas y vuelan. ¿Quién o quiénes?

Respuesta: *las abejas*

Otras respuestas posibles serían *las mariposas* **o** *las aves*.

Recuérdate, sólo una respuesta por cada idea.

Bueno, escuchemos las ideas. Tienen un ratito para contestar.

1. Tienen una función esencial en fabricar el alimento para las plantas y generalmente son menos atractivas que las flores. ¿Qué?

2. Para plantar una flor, cavaste un hoyo no muy profundo en la tierra, echaste las semillas y después las regaste con la manguera. ¿Quién o quiénes?

3. Redactó los pasos para el experimento de ciencias. ¿Quién o quiénes?

4. Se come cocinado o crudo, es rico y nutritivo. ¿Qué?

5. Reunieron dos vasos de plástico transparentes, una cinta adhesiva de papel y tres semillas de rábano para la actividad. ¿Quién o quiénes?

6. Almacenan mucha agua. Algunos son dulces y jugosos, otros son secos. ¿Qué?

7. Es exquisita y nutritiva, pero a veces puede ser algo ácida. ¿Qué?

8. Como frutas y verduras todos los días porque es bueno para la salud. ¿Quién o quiénes?

9. Absorben agua y minerales y por lo general son largas, ¿Qué?

10. Se pegan a la piel de los animales. ¿Qué?

ASSOCIATING IDEAS

Nombre ______________________________

Grado: ______________________________

Fecha: ______________________________

1. ____________________
2. ____________________
3. ____________________
4. ____________________
5. ____________________
6. ____________________
7. ____________________
8. ____________________
9. ____________________
10. ____________________

Possible answers to the aural processing test:

1. las hojas

2. yo , tú (depending on how they interpret the text)

3. la maestra, mi compañero

4. el tomate, el coliflor, el pimentón, etc.

5. mis compañeros, ellos, los estudiantes, mis amigos

6. los frutos, los tallos

7. la naranja, la piña, la fresa, la cereza

8. Ud., la profesora, Sra. Stein, tú

9. las raíces, las hojas

10. las semillas, los frutos, los granitos de polen

APPENDIX D

TRANSCRIPTION AND TRANSLATION OF SAMPLE TESTS

TRANSCRIPTION CONVENTIONS

Transcription Conventions (from Tannen 1981).

.. noticeable pause or break in rhythm

/?/ incomprehensible talk

: lengthened vowel sound

[Brackets show overlap and/or no pause

Note:

An attempt was made to transcribe the learners' interlanguage phonology, syntax and lexicon. For example, accents in the transcription are not always the appropriate orthographic accents, e.g. "paso" instead of "pasó," or "accion" instead of "acción"

1) Oral item question/answer pretest: S-V and N-A agreement

1. *Yo reuniste* una vaso y una tallo, tijeras y colorante rojo.

   I (you) collected a glass and a stem, scissors and red coloring.

2. Ella *se cortó* la tallo en tres partes de arriba.

   She cut herself the stem in three parts on the top.

3. *Yo pusiste* (corrected to nosotros after she heard the prompt), *Nosotros pusiste* la tallo en el colorante rojo.

   I (you) put, we (you) put the stem (fem.) in the red coloring.

4. ¿Cuántas gotitas *ponieron* en el agua?

   How many drops they (IL) put in the water?

5. *Yo observaste* que la rojo colorante se observan la rojo, la rojo colorante.

   I (you) observed that the red coloring they observe themselves the red, the red coloring.

6. *Ellos han* visto la misma cosa que la *tallo se observa* la rojo agua.

   They have seen the same thing that the stem (fem.) observes itself the red water (masc.)

7. *El planta se observan* la agua rojo.

   The plant (they) observe themselves the red water (masc.)

8. Las gotitas eran rojo.

The drops were red (sing.masc.)

9. La agua se volvió rojo, muy, muy muy rojo.

The water became red, very, very, very red (masc.)

10. *La planta voy* a ser amarillo y no rojo.

The plant (I) will be yellow (masc.) and not red (masc.).

11. Yo me gusta el sandía porque es muy rico y por afuera es muy duro y adentro es rojo y afuera es verde.

I (I) like (IL) the watermelon (masc.) because it is very tasty (masc.) on the outside is hard (masc.) and inside it is red (masc.) and the outside is green.

12. Yo me gusta tomates porque son, son muy maduro y verde yo me gusta porque son muy rico también (NNS, F2 group, 23).

I (I) like (IL) tomatoes because they are, they are very ripe and green (sing.) and I (I) like (it) because they are very tasty (sing.) too (NNS, F2 group, 23).

Code: italics: S-V; underline: N-A gender; double underline: N-A

number

2) Aural processing posttest: S-V and N-A agreement

Researcher: ***Redactó** los pasos para el experimento de ciencias. ¿Quién o quiénes?*

She or he wrote the steps for the science experiment. Who?

Correct answer: *la maestra* or *profesora* (the teacher), el *estudiante* (the student).

Other inaccurate answers:

a) *semillas* (seeds) (NNS, F2, 21)

b) *niñas* (FNS, F1, 18)

c) *cientistas* (IL) (USNS, F2, 14)

Researcher: ***Tienen** una función esencial en fabricar el alimento para las plantas y generalmente son menos **atractivas** que las flores. ¿Qué?*

They have an essential role in producing food for the plants and are generally less attractive than flowers. What?

Correct answers: *hojas* (leaves) or *raíces* (roots) (NNS, NF2, 59)

Other inaccurate answers:

a) tallo (stem) (NNS, NF1, 42)

b) raíz (root) (FNS (El Salvador), NF1, 50)

c) agua (water) (USNS, F1, 15)

FNS = Foreign-born native speaker

USNS = US-born native speaker

3) Written Puzzle posttest: S-V agreement

Nosotros ***estan*** *estudiamos un experimento con plantas. Los materiales que mis compañeros y yo* ***necesitan*** *para el experimento son tijeras, colorante, agua, vasos plasticos y un tallo. Primero la maestra* ***corta*** *un tallo. Segundo, tú* ***poner*** *el agua en los vasos plasticos. Tercero,* ***necesita*** *poner 20 gotitas de colorante en los vasos. Despues* ***poner*** *el tallo en el vaso y el tallo* ***obserban*** *el colorante y* ***cambia*** *a este color* (NNS, NF2, 55).

We (they) are studying an experiment on plants. The materials that my classmates and I (they) need for the experiment are scissors, coloring, water, plastic cups and a stem. First the teacher cuts a stem. Then you to put the water in the plastic cups. Third, (he/she) needs to put 20 drops of coloring in the cups. Then to put the stem in the cup and the stem (they) observe and the coloring and changes to this color (NNS, NF2, 55).

4) Written seed posttest (semilla): S-V and N-A agreement

*Soy una semilla de "Poison Ivy". Yo **necita** agua y sol para crecer. No **tienen** que **quidan** a nadie. Yo **tiene** un venom. Yo **tiengo** pequeñas semillas para dispersar. Yo **va** a ser "Poison Ivy" cuando **creces**. Yo **voy** a ser **verde** con **rojo**. Solo **tienen** los raices y el parte de Ivy* (NNS, NF2, 53).

I am a seed of "poison ivy". I need (IL) water and sun to grow. (They) don't have that take care (IL) of anyone. I (she/he) has a venom. I have (IL) small seeds to disperse. I (she/he) is going to be "poison ivy" when (you) grow. I am going to be green and red. (They) only have the roots and the part of ivy (NNS, NF2, 53).

5) Written riddle posttest (adivinanza): N-A gender agreement

1. *Las manzanas*

*¿Que es **rojo** y tambien es **verde** y poede usar en salada de fruitas?*

(The) apples (fem., pl.)

What is red (masc., fem.) and is also green and (he/she) can use (IL) in fruit salad (IL)?

2. *El durazno*

*¿Que es un fruita **anaranjado** que tiene un pit en el.*

(The) peach (masc., sing.)

What is an orange fruit that has a pit in the.

3. *Las uvas*

*¿Son **rojos** o **morados** y son **pequeños** y se puede comprar en grupos?*

(The) grapes (fem., pl)

(They) are red (masc.) or purple (masc.) and are small and one can buy (it) in bunches?

4. *Las fresas*

Es un fruita ***rojo*** *y tiene semillas alrededor de el y es* ***asido.***

(The) strawberries (fem., pl.) It is a red (masc.) fruit and has seeds around it and is sour (masc., sing.)

5. *Los limones*

¿Es ***amarillo y asido*** *y se ve con un /?/ y puede poner por decoricion?*

(The) lemons? (masc., pl.) Is yellow (sing.) and sour and it looks with a /?/ and (he/she) can put for decoration (IL)? (NNS, NF1, 36).

6) Oral tree posttest (árbol): S-V and N-A agreement

Soy un árbol. El viento, la lluvia, sol, se ayuda a mí para que crece. Los colores en el primavera son ***verde, claro*** *y, y.. y, personas se sienten cerca de mí y.. y.. y en el verano son*

*muy **verde** y en el otoño se cambian de colores colo/**naranjado, amarillo y verde, verde.** Los pájaros vienen en el verano y el otoño y la primavera para sentarse y hacen bebes pero en el invierno se van y la nieve se viene. Yo no tengo hojas después y tengo frutas en el primavera de vuelta y pero en el invierno no es muy bien porque es frioso y no nadie que hablar, no hay nadie que gritar ni, pero niñosvienes en el nieve a jugar y, se juegan con el nieve y se tiran a mí y otros con ellas pero yo soy un árbol y no puedo moverme. Mis ramas son muy **largo** y algunas son **cortas**..y tiene fruta de vuelta y son muy **bonitas*** (USNS, F1, 12).

N-A: bolded

S-V: underline

I am a tree. The wind, the rain, sun, help itself me to (it) grow. The colors in the spring are green, light and, and.. and, people sit (IL) next to me and.. and.. and in the summer are very green and in the fall change colors orange, yellow and green, green. The birds come in the summer and autumn and

spring to sit and make babies but in the winter they go and the snow comes (itself). I don't have leaves afterward and I have and I have fruits in the (IL) spring again and but in the winter is not very good because it's cold (IL) and nobody to talk to, nobody to shout nor, but children (you) come with the snow and throw themselves on me and others with them (fem.) but I am a tree and I can't move. My branches are very long (masc.) and some are short.. and have fruit again and are very pretty (USNS, F1, 12).

Note: only gender or number agreement errors are marked in parentheses in the translation.

APPENDIX E

PILOT TESTS NOT USED IN THE STUDY

AURAL PROCESSING TEST

Nombre:____

Grado:____

Fecha:____

En tu clase de ciencias vas a discutir o has discutido muchas ideas interesantes. A continuación, muestra **DE QUIEN O DE QUE HABLAMOS** en cada frase. Para eso, marca con un **círculo** la letra que corresponde a la respuesta correcta. **Sólo hay una respuesta en cada caso.** Por ejemplo:

Tienen semillas negras.
- a. la sandía
- b. las chirimoyas
- c. la papaya

1. Están pegados a la piel del oso.
   - a. la hoja
   - b. los frutos
   - c. las semillas

2. Frecuentemente son muy pequeñas.
   - a. las semillas
   - b. la semilla
   - c. los granitos de polen

3. Submergimos el frijol en agua.
   - a. Uds.
   - b. nosotros
   - c. mis compañeros

4. Explicó cómo funcionan las plantas.
   - a. los maestros
   - b. la maestra
   - c. las maestras

5. Reúno dos frascos grandes de boca ancha.
   - a. tú
   - b. yo
   - c. mi grupo

6. Está adaptada al frío.
   - a. la hoja
   - b. las hojas
   - c. el tallo

7. Son largas.
   - a. los tallos
   - b. la zanahoria
   - c. las zanahorias

8. Pones las plantas en la sombra.
 a. nosotros
 b. tú
 c. mis compañeros

9. Observó a los animales y plantas.
 a. nosotros
 b. Ud.
 c. mis amigos

10. Atraen a los insectos y a otros animales.
 a. el color y el olor de las flores.
 b. el color de las flores.
 c. el olor de las flores.

11.A veces es dura.
 a. los cachuetes
 b. la cáscara
 c. las semillas

12. Son muy pesados.
 a. las flores
 b. los frutos
 c. las ramas

WRITTEN ITEM TEST (PILOT ONLY)

Nombre:_______________________________________

Grado:____

Fecha:____

Tú has hecho un experimento con un tallo, ¿verdad?.

Contesta las siguientes preguntas con **oraciones completas. Usa la primera palabra en cada línea para contestar.**

1. ¿Qué aprendiste de este experimento?

YO____

____

2. ... ¿y tu compañeros?

ELLOS____

____

3. ¿Como cooperaron Uds. en grupo?

NOSOTROS____

____

4. ¿Qué hizo el tallo para cambiar de color?

EL TALLO

____

____

5. Pregunta (por escrito) a tu compañero cuántas gotas puso en el vaso.

¿CUANTAS____

____

APPENDIX F

FEEDBACK DATA

TARGET FEATURE: N-A GENDER AGREEMENT

GROUP: F2

TOPIC	TARGET ERROR	TARGET FEEDBACK	MISSED OPPORTUNITY	NON-TARGET ERROR	NON-TARGET FEEDBACK
HEAT	7	4	3	2	2
FLOWER	19	12	7	5	5
VOLUME	3	2	1	1	1
ROCKS	21	13	8	8	8
TOWELS	18	12	6	3	3
WEATHER	5	3	2	1	1
TEMPERATURE	6	4	2	1	1
TOTAL	79	50	29	21	21

TARGET FEATURE: N-A NUMBER AGREEMENT

GROUP: F2

TOPIC	TARGET ERROR	TARGET FEEDBACK	MISSED OPPORTUNITY	NON-TARGET ERROR	NON-TARGET FEEDBACK
HEAT	3	2	1	1	1
FLOWER	10	7	3	2	2
VOLUME	3	2	1	0	0
ROCKS	6	5	1	2	2
TOWELS	7	4	3	2	2
WEATHER	5	4	1	1	1
TEMPERATURE	2	1	1	0	0
TOTAL	36	25	11	9	9

TARGET FEATURE: S-V AGREEMENT

GROUP: F1

TOPIC	TARGET ERROR	TARGET FEEDBACK	MISSED OPPORTU-NITY	NON-TARGET ERROR	NON-TARGET FEEDBACK
HEAT	16	10	6	2	2
FLOWER	15	9	6	6	5
VOLUME	11	6	5	2	2
ROCKS	40	26	14	12	12
TOWELS	14	9	5	2	2
WEATHER	17	11	6	2	2
TEMPERA-TURE	16	10	6	2	2
TOTAL	129	81	48	28	28

APPENDIX G

RAW DATA

The following tests were considered for analysis (the abbreviations would be preceded by pre-, post- or dpost- prefixes according to whether they were pretests, posttests or delayed posttests; the abbreviations in parentheses were used in the statistical analysis and on the raw data):

S-V oral item (question/answer) test (oriv)

S-V oral tree test (orav)

S-V written puzzle test (puzv)

S-V written seed test (semv)

S-V aural processing test (aurv)

N-A gender oral item (question/answer) test (orig)

N-A gender oral tree test (orag)

N-A gender written riddle test (adiv)

N-A gender written seed test (semg) (eliminated from analysis)

N-A gender aural processing test (aurg)

N-A number oral item (question/answer) test (orin)

N-A number oral tree test (oran)

N-A number written seed test (semn) (eliminated from analysis)

N-A number aural processing test (aurn)

The following groups were analyzed for comparisons:

1) F1 (morning instructed); F2 (afternoon instructed); and NF1 (morning uninstructed)
2) F2 (afternoon instructed); F1 (morning instructed); and NF2 (afternoon uninstructed)

F1 = subject-verb agreement treatment

F2 = noun-adjective agreement treatment (gender and number)

The target features were the following:

S-V = subject-verb agreement

N-A gender = noun-adjective gender agreement

N-A number = noun-adjective number agreement

F1 PRETESTS

subj	lang	oriv	orav	orin	oran	orig	orag	aurv
1	1	45	43	59	20	34	33	40
2	1	46	27	72	53	33	38	33
3	1	64	54	57	80	36	50	0
4	1	68	44	56	50	42	29	20
5	1	46	55	81	0	62	0	30
6	1	41	38	50	0	38	0	0
7	1	58	74	67	92	50	78	40
8	1	52	68	70	80	42	100	40
9	1	42	20	50	22	35	14	0
10	1	55	15	57	100	47	100	0
11	2	91	60	52	100	46		20
12	2	78	84	45	100	41	100	40
13	2	90	100	76	92	74	100	0
14	2	97	100	92	100	81	0	40
15	2	85	100	65	33	56	33	40
16	2	83	100	50	0	56	0	25
17	3	94	100	94	100	88	83	0
18	3	82	100	93	91	100	78	40

Subjects 1-10: Non-Native speakers
Subjects 11-18 : Native speakers

F1 PRETESTS (continued)

subj	lang	aurn	aurg	puzv	adivg	semv	semn	semg
1	1	60	20	33	33	17	100	
2	1	20	40	58	31	44	100	60
3	1	33	0	69	58	47	100	
4	1	100	60	54	54	30	100	0
5	1	100	66	29	69	20		
6	1	80	80	11	33	19	71	71
7	1	100	50	64	50	44	100	40
8	1	40	60	25	22	18	89	63
9	1	50	50	14	30	35	75	75
10	1	0	0	17	38	0	67	33
11	2	40	60	17	38	33	100	100
12	2	60	100	43	50	93	100	33
13	2	0	0	50	40	70	100	67
14	2	80	40	87	75	94	100	100
15	2	40	20	80	33	50	100	100
16	2	60	80	89	40	86		
17	3	25	50	92	100	93	100	0
18	3	40	20	70	50	91	100	100

Subjects 1-10: Non-Native speakers
Subjects 11-18: Native speakers

F1 POSTTESTS

subj	lang	oriv	orav	orin	oran	orig	orag	aurv
1	1	50	43	45	50	32	40	100
2	1	52	28	62	38	44	0	20
3	1	74	50	67	20	53	0	0
4	1	69	58	55	63	27	0	40
5	1	79	62	72	100	63	100	50
6	1	39	46	51	75	43	50	40
7	1	75	75	88	83	52	88	60
8	1	60	52	56	17	42	25	40
9	1	50	21	50	33	50	0	20
10	1	45	63	46	50	42	100	0
11	2	90	80	74	67	55	50	0
12	2	76	88	32	67	46	75	40
13	2	100	95	95	100	71	83	33
14	2	87	92	73	80	50	63	60
15	2	88	93	83	100	41	100	60
16	2	75	100	33	50	44		25
17	3	100	100	94	100	94	100	40
18	3	86	85	85	86	92	100	20

Subjects 1-10:	Non-Native speakers
Subjects 11-18:	Native speakers

F1 POSTTESTS (Continued)

subj	lang	aurn	aurg	puzv	adivg	semv	semn	semg
1	1	80	0	38	50	9	100	100
2	1	67	100	67	42	29	100	80
3	1	50	25	31	40	31	100	50
4	1	100	60	33	71	29	100	60
5	1	75	50	50	42	40	100	100
6	1	80	40	9	50	11	100	100
7	1	60	40	45	50	65	100	100
8	1	40	60	22	33	13	100	0
9	1	80	40	25	42	13	100	100
10	1	0	0	17	57	43	100	0
11	2	40	20	50	31	82	100	100
12	2	80	40	78	25	77	100	33
13	2	50	50	88	60	13	100	100
14	2	80	20	92	71	68	100	100
15	2	40	20	77	50	67		
16	2	60	0	86	50	100	100	0
17	3	67	67	89	89	87	100	100
18	3	40	40	82	89	38		

Subjects 1-10:	Non-native speakers
Subjects 11-18:	Native speakers

F1 DELAYED POSTTESTS

subj	lang	oriv	orav	orin	oran	orig	orag	aurv
1	1	59	41	71	86	36	33	80
2	1	53	26	65	17	43	14	20
3	1	71	42	62	50	47	20	40
4	1	82	55	53	58	33	43	50
5	1	74	65	95	75	47	100	50
6	1	23	10	42	75	41	60	20
7	1	57	73	79	71	49	40	40
8	1	66	29	45	71	45	75	40
9	1	39	60	68	82	47	75	0
10	1	48	29	51	0	37		0
11	2	82	100	88	67	48	50	20
12	2	88	93	49	67	41	100	40
13	2	95	91	78	25	75	33	0
14	2	92	97	73	36	55	43	40
15	2	91	82	85	75	32	92	40
16	2	97	100	61	100	43	100	50
17	3	80	95	81	80	81	70	40
18	3	97	100	95	100	84	100	20

Subjects 1-10: Non-Native speakers
Subjects 11-18: Native speakers

F1 DELAYED POSTTESTS (Continued)

subj	lang	aurn	aurg	puzv	adivg	semv	semn	semg
1	1	80	40	20	38	25	100	100
2	1	60	80	78	67	33	100	0
3	1	40	20	56	36	17	100	0
4	1	100	80	61	43	67	90	100
5	1	75	50	27	69	50		
6	1	40	20	8	54	25		
7	1	60	80	50	83	54	100	100
8	1	40	40	33	50	21	86	50
9	1	60	40	15	50	44	100	100
10	1	33	0	25	44	0	100	
11	2	60	20	77	38	60	100	100
12	2	60	20	75	67	83	100	100
13	2	0	0	100	69	80	100	
14	2	50	20	100	73	80	88	67
15	2	80	20	100	75	75	100	100
16	2	60	0	93	60	100	100	
17	3	100	80	100	70	100	100	
18	3	40	20	100	71	80		

Subjects 1-10: Non-Native speakers
Subjects 11-18: Native speakers

F2 PRETESTS

subj	lang	oriv	orav	orin	oran	orig	orag	aurv
19	1	75	33	49	100	44	100	40
20	1	75	54	44	89	18	60	50
21	1	50	64	94	80	50	67	0
22	1	57	11	62	100	26	100	0
23	1	67	65	76	100	38	0	60
24	1	17	15	36		9		0
25	1	56	18	64	67	38	25	50
26	2	93	86	76	67	74	100	0
27	2	73	100	75	100	38	80	
28	2	91	100	69	100	54	0	25
29	2	96	100	65	100	68	100	80
30	2	92	100	53	86	35	100	25
31	3	95	88	80	100	46	100	20
32	3	100	88	100	100	90	100	40
33	3	87	100	93	100	68	40	66
34	3	89	100	92	100	29	100	40
35	3	100	100	58	100	63	75	100

Subjects 19-25: Non-Native speakers
Subjects 26-35: Native speakers

F2 PRETESTS (Continued)

subj	lang	aurn	aurg	puzv	adivg	semv	semn	semg
19	1	50	50	31	67	44	100	67
20	1	100	100	36	50	36	0	100
21	1	40	40	22	67	29	100	100
22	1	100	100	39	33	22	0	
23	1	60	0	29	33	75	83	20
24	1	0	0	75	57	10	100	
25	1	100	0	23	83	33	80	50
26	2	80	80	100	40	100	100	100
27	2	80	60	75	57	93	100	100
28	2	100	60	100	50	100	88	100
29	2	40	80	92	62	100	100	100
30	2	75	50	91	43	100	100	100
31	3	40	60	83	40	95	100	100
32	3	80	60	70	80	67	67	100
33	3	100	75	86	50	81	100	100
34	3	60	0	100	40	100	100	100
35	3	66	33	100	63	100	100	75

Subjects 19-25: Non-Native speakers
Subjects 26-35: Native speakers

F2 POSTTESTS

subj	lang	oriv	orav	orin	oran	orig	orag	aurv
19	1	50	67	43	100	38	100	20
20	1	50	64	44	27	46	25	25
21	1	63	75	100	88	47	33	0
22	1	38	21	53	50	30	0	50
23	1	65	79	43	50	33	40	40
24	1	26	25	74	50	50	50	0
25	1	63	8	56	75	32	67	40
26	2	97	86	86	88	69	100	25
27	2	86	90	86	100	35	100	0
28	2	86	100	83	57	82	60	25
29	2	96	96	79	44	47	40	40
30	2	89	100	50	89	31	100	25
31	3	92	100	83	60	57	89	0
32	3	95	100	92	100	95	100	20
33	3	91	94	86	100	68	100	25
34	3	97	92	70	100	50	100	60
35	3	100	100	88	100	70	67	100

Subjects 19-25: Non-Native speakers
Subjects 26-35: Native speakers

F2 POSTTESTS (Continued)

subj	lang	aurn	aurg	puzv	adivg	semv	semn	semg
19	1	60	40	13	57	55	100	80
20	1	67	33	30	55	38	100	0
21	1	60	60	17	50	33	83	100
22	1	100	100	58	63	22		
23	1	40	40	29	63	58	100	50
24	1	20	40	0	40	43	100	100
25	1	50	50	29	46	22	100	100
26	2	100	80	56	55	100	100	
27	2	50	50	70	45	93	100	0
28	2	80	60	88	78	100	100	100
29	2	60	80	100	64	93	100	100
30	2	80	60	100	70	100	50	50
31	3	60	40	88	75	100	100	100
32	3	80	60	100	67	57	80	100
33	3	80	80	100	73	100	100	100
34	3	50	25	100	33	100	100	0
35	3	75	25	91	56	100	100	100

Subjects 19-25: Non-Native speakers
Subjects 26-35: Native speakers

F2 DELAYED POSTTESTS

subj	lang	oriv	orav	orin	oran	orig	orag	aurv
19	1	66	68	48	57	36	33	20
20	1	64	63	53	50	33	30	20
21	1	82	100	62	60	41	33	20
22	1	38	69	46	17	50	20	50
23	1	73	77	71	59	45	36	40
24	1	22	22	62	100	55	100	0
25	1	71	53	56	50	48	20	40
26	2	84	92	69	75	56	50	0
27	2	92	80	100		71		20
28	2	92	100	88	100	87	100	40
29	2	100	79	100	89	38	83	60
30	2	94	100	64	40	36	0	40
31	3	89	100	72	58	60	44	20
32	3	100	89	100	75	76	100	40
33	3	100	92	88	83	70	80	80
34	3	97	94	86	100	55	100	40
35	3	85	93	80	80	47	0	50

Subjects 19-25: Non-Native speakers
Subjects 26-35: Native speakers

F2 DELAYED POSTTESTS (Continued)

subj	lang	aurn	aurg	puzv	adivg	semv	semn	semg
19	1	60	20	10	44	75	100	100
20	1	0	0	0	50	33	100	100
21	1	80	40	29	38	29	100	
22	1	60	40	27	44	15	100	100
23	1	60	20	29	38	60	83	50
24	1	0	0	50	25	0	50	50
25	1	40	40	63	45	56	75	100
26	2	100	80	100	63	100	100	
27	2	60	40	91	43	100	100	100
28	2	100	40	100	90	100	100	100
29	2	40	60	100	31	90	100	100
30	2	80	60	78	50	100	100	100
31	3	40	40	100	44	100	83	100
32	3	80	80	86	45	100	100	100
33	3	100	80	90	50	79	100	100
34	3	60	40	100	50	100	100	100
35	3	50	0	100	56	100	100	50

Subjects 19-25:	Non-Native speakers
Subjects 26-36:	Native speakers

NF1 PRETESTS

subj	lang	oriv	orav	orin	oran	orig	orag	aurv
36	1	85	100	74	0	53	0	60
37	1	67	67	47	100	29	100	
38	1	72	77	69	87	46	100	50
39	1	80	64	16	70	32	50	20
40	1	46	75	80		61	0	0
41	1	57	53	71	14	46	0	60
42	1	69	87	63	83	41	75	20
43	1	80	93	87	100	64	50	60
44	1	45	59	67	100	64	25	40
45	1	73	91	60	33	33	33	75
46	1	66	68	85	86	55	57	20
47	2	88	100	86	100	35	100	20
48	2	100	100	100	83	83	80	60
49	3	96	96	81	90	48	88	20
50	3	94	100	67	100	76		20
51	3	94	100	90	100	79	100	60
52	3	100	100	100	100	95	100	60

Subjects 36-46:	Non-Native speakers
Subjects 47-52:	Native speakers

NF1 PRETESTS (Continued)

subj	lang	aurn	aurg	puzv	adivg	semv	semn	semg
36	1	60	60	17	30	40	100	50
37	1	100	67	33	33	40	100	0
38	1	80	80	80	43	83	100	100
39	1	100	20	75	63	35	100	100
40	1	40	60	50	25	44	100	
41	1	80	40	25	33	0	100	0
42	1	60	40	43	57	50	100	33
43	1	80	60	50	63	73	100	71
44	1	60	60	73	50	54	100	60
45	1	100	75	50	33	75	50	100
46	1	80	60	50	50	57	100	100
47	2	40	40	67	71	94	100	100
48	2	100	80	100	90	88	100	100
49	3	40	40	100	88	75	100	100
50	3	60	80	80	67	89	50	0
51	3	40	20	92	64	100	100	100
52	3	80	60	93	58	100	100	100

Subjects 36-46: Non-Native speakers
Subjects 47-52: Native speakers

NF1 POSTTESTS

subj	lang	oriv	orav	orin	oran	orig	orag	aurv
36	1	67	42	70	100	47	100	0
37	1	61	44	68	71	47	67	40
38	1	70	79	55	88	39	75	20
39	1	81	88	62	73	37	33	60
40	1	62	77	69	100	67	0	0
41	1	68	63	57	50	50	50	60
42	1	77	90	61	20	39	33	20
43	1	76	95	86	56	44	100	40
44	1	73	36	62	91	33	71	40
45	1	86	79	54	50	37	0	60
46	1	63	61	93	70	44	17	60
47	2	90	89	74	67	38	100	25
48	2	95	95	68	57	95	50	40
49	3	85	94	67	50	61	40	40
50	3	95	100	88		57		40
51	3	96	95	77	67	50	100	40
52	3	100	100	100	100	100	100	60

Subjects 36-46: Non-Native speakers
Subjects 47-52: Native speakers

NF1 POSTTESTS (Continued)

subj	lang	aurn	aurg	puzv	adivg	semv	semn	semg
36	1	20	60	67	33	64	100	100
37	1	80	40	11	22	33	100	0
38	1	60	80	0	43	67	100	
39	1	100	60	60	25	25	67	25
40	1	80	60	10	0	71	100	100
41	1	60	40	25	43	31	50	100
42	1	60	20	40	63	40	50	100
43	1	60	80	44	44	80	100	63
44	1	40	60	43	33	21	100	0
45	1	67	67	40	40	63	100	67
46	1	40	40	21	63	40	100	
47	2	75	0	63	60	92	100	100
48	2	80	80	75	63	100	100	67
49	3	80	40	100	63	100	100	100
50	3	60	80	100	43	100	50	100
51	3	50	60	86	40	90	100	100
52	3	100	100	100	33	86	100	50

Subjects 36-46: Non-Native speakers
Subjects 47-52: Native speakers

NF1 DELAYED POSTTESTS

subj	lang	oriv	orav	orin	oran	orig	orag	aurv
36	1	71	64	69	20	47	0	20
37	1	28	69	46		29		40
38	1	74	94	87	90	39	100	40
39	1	78	71	61	11	58	13	20
40	1	71	62	66		64		20
41	1	70	53	47	67	33	50	40
42	1	63	82	46	0	23	0	20
43	1	78	85	83	100	45	100	20
44	1	56	60	67	100	25	100	60
45	1	76	100	43	25	40	100	60
46	1	77	79	93	80	56	73	60
47	2	100	100	63	100	32	80	20
48	2	100	90	93	100	67	100	80
49	3	88	94	86	100	64	100	80
50	3	86	80	74	100	76		40
51	3	100	100	91	100	52	100	40
52	3	100	97	100	100	96	100	80

Subjects 36-46:	Non-Native speakers
Subjects 47-52:	Native speakers

NF1 DELAYED POSTTESTS (Continued)

subj	lang	aurn	aurg	puzv	adivg	semv	semn	semg
36	1	60	60	50	44	33	100	0
37	1	80	20	33	27	20		
38	1	80	80	67	56	67	75	100
39	1	80	60	45	36	14	75	0
40	1	60	60	43	25	22	100	100
41	1	80	60	40	11	42		
42	1	40	60	38	33	43	100	0
43	1	80	40	36	55	93	100	83
44	1	80	80	29	60	17		
45	1	80	40	33	60	40	100	100
46	1	40	60	46	44	63	100	100
47	2	60	40	89	40	73	0	
48	2	80	80	60	100	86	100	100
49	3	80	40	100	90	100	100	
50	3	80	60	100	54	100	100	0
51	3	60	40	73	46	100	100	100
52	3	100	80	100	36	82	100	100

Subjects 36-46: Non-Native speakers
Subjects 47-52: Native speakers

NF2 PRETEST

subj	lang	oriv	orav	orin	oran	orig	orag	aurv
53	1	67	38	60	0	61		50
54	1	74	56	74	100	59	50	40
55	1	66	63	85	73	54	50	0
56	1	53	64	64	83	40	100	25
57	1	64	36	46	0	40	0	100
58	1	62	56	63	50	25	0	40
59	1	68	93	57	18	45	25	20
60	2	93	96	88	75	81	57	40
61	2	74	90	71	100	42	0	25
62	3	100	100	94	100	80	100	20
63	3	100	98	100	89	68	100	40

Subjects 53-59: Non-Native speakers
Subjects 60-63: Native speakers

NF2 PRETEST (Continued)

subj	lang	aurn	aurg	puzv	adivg	semv	semn	semg
53	1	50	0	20	63	50	100	
54	1	60	60	20	100	29	100	
55	1	100	33	50	50	43	100	100
56	1	60	20	40	75	38	100	100
57	1	0	0	14	63	14	100	
58	1	60	20	50	75	43	100	100
59	1	80	20	29	88	29	100	0
60	2	40	40	100	100	70	100	67
61	2	50	25	70	63	62	100	100
62	3	50	25	87	80	100	100	100
63	3	100	60	100	50	91		

Subjects 53-59: Non-Native speakers
Subjects 60-63: Native speakers

NF2 POSTTEST

subj	lang	oriv	orav	orin	oran	orig	orag	aurv
53	1	82	44	70	67	53	67	0
54	1	70	62	48	100	50	0	0
55	1	59	75	76	91	60	75	20
56	1	68	62	60	63	32	63	20
57	1	50	27	45	100	52	100	40
58	1	59	33	84	60	46	0	60
59	1	47	75	56	0	39		0
60	2	100	92	97	100	70	71	60
61	2	74	100	84	100	75	75	40
62	3	100	100	100	100	94	100	50
63	3	89	93	77	83	71	63	60

Subjects 53-59: Non-Native speakers
Subjects 60-63: Native speakers

NF2 POSTTEST (Continued)

subj	lang	aurn	aurg	puzv	adivg	semv	semn	semg
53	1	40	0	50	50	22	100	100
54	1	40	40	50	100	33	100	0
55	1	75	25	33	89	50	80	50
56	1	80	20	13	60	29	100	100
57	1	50	25	44	40	38	50	0
58	1	40	20	43	50	46	50	0
59	1	75	25	25	57	17		
60	2	100	80	100	85	100	100	100
61	2	60	60	100	75	62	100	80
62	3	80	40	92	83	100	100	100
63	3	80	60	100	50	93	100	100

Subjects 53-59: Non-Native speakers
Subjects 60-63: Native speakers

NF2 DELAYED POSTTEST

subj	lang	oriv	orav	orin	oran	orig	orag	aurv
53	1	78	70	58	0	38		0
54	1	71		56		29		20
55	1	59	54	64	63	55	29	60
56	1	57	27	75	100	36	33	20
57	1	64	50	50		47		25
58	1	65	40	55	100	46	100	40
59	1	47	56	63	0	45	0	60
60	2	97	90	84	63	61	25	60
61	2	81	87	82		64		40
62	3	100	100	100	67	79	50	60
63	3	96	88	86	100	55	100	40

Subjects 53-59: Non-Native speakers
Subjects 60-63: Native speakers

NF2 DELAYED POSTTEST (Continued)

subj	lang	aurn	aurg	puzv	adivg	semv	semn	semg
53	1	60	60	75	25	18	100	
54	1	0	0	25	25	20	100	
55	1	75	50	0	64	33	100	100
56	1	40	20	88	55	40	100	100
57	1	75	50	38	29	63	100	0
58	1	80	20	60	50	50	100	
59	1	60	80	17	33	20	50	0
60	2	60	80	100	90	91	100	100
61	2	100	60	88	67	82	100	50
62	3	80	20	100	80	83	100	100
63	3	80	40	78	40	100	100	100

Subjects 53-59:	Non-Native speakers
Subjects 60-63:	Native speakers

BIBLIOGRAPHY

Allen, P. (1988). The development of instructional models in second language acquisition. *Annual Review of Applied Linguistics,* 9, 179-192.

Allen, P., Swain, M., Harley, B., & Cummins, J. (1990). Aspects of classroom treatment: Toward a more comprehensive view of second language education. In Harley, B., Allen, P., Cummins, J., & Swain, M. (Eds.) *The development of second language proficiency* (pp. 57-81). Cambridge: Cambridge University Press.

Andersen, R. (1984a). What is gender good for, anyway? In Roger Andersen (Ed.) *Second languages: A cross-linguistic perspective* (pp. 77-99). Rowley, MA: Newbury House Publishers, Inc.

Andersen, R. (1984b). The one to one principle of interlanguage construction. *Language Learning,* 34, 77-95.

Andersen, R. (1986). El desarrollo de la morfología verbal en el español como segundo idioma. In J. M. Meisel (Ed.) *Adquisición de lenguaje: Comprobación en el español* (pp. 115-138). Frankfurt: Vervuert.

Anderson, S. (1985). Inflectional morphology. In T. Shopen (Ed.) *Language typology and syntactic description. Vol 3: Grammatical categories and the lexicon* (pp.150-201). Cambridge: Cambridge University Press.

Arróliga, D., Stein, M., Woodson, K., & Cangiano, V., (1994). "Explicit instruction on redundant features: Input processing and output practice". Unpublished manuscript, Georgetown University. Poster presented at SLRF 1994, Montreal, Canada.

Artigal, J.M. (1991). *The Catalan immersion program: A European point of view*. Norwood, New Jersey: Ablex Publishing Corporation.

Bardovi-Harlig, K. (1987). Markedness and salience in second-language acquisition. *Language Learning,* 37, 3, 385-407.

Barfield, C., & Rhodes, N., (1994). "Review of the eighth year of the partial immersion program at Key Elementary School, 1993-94". Evaluation report prepared by the Center for Applied Linguistics, Washington, DC.

Bialystok, E. (1978). A theoretical model of second language learning. *Language Learning,* 28, 69-84.

Bialystok, E. (1988). Psycholinguistic discussions of second language proficiency. In Rutherford, W., & Sharwood Smith, M. (Eds.) *Grammar and second language teaching* (pp. 31-50). New York, NY: Newbury House Publishers.

Bialystok, E. (1991a). Achieving proficiency in a second language: A processing description. In Phillipson, R., Kellerman, E., Selinker, L., Sharwood Smith, M., & Swain, M.(Eds.) *Foreign/second language pedagogy research* (pp. 63-78). Clevedon, Philadelphia: Multilingual Matters Ltd.

Bialystok, E. (1991b). Metalinguistic dimensions of bilingual language proficiency. In E. Bialystok (Ed.) *Language processing in bilingual children* (pp. 113-140). New York, NY: Cambridge University Press.

Bialystok, E. (1994a). Analysis and control in the development of second language proficiency. *Studies in Second Language Acquisition,* 16, 157-168.

Bialystok, E. (1994b). Representation and ways of knowing: Three issues in second language acquisition.

In N. Ellis (Ed.) *Implicit and explicit learning of languages* (pp. 549-569) London: Academic Press.

Bialystok, E. and Sharwood Smith, M. (1985). Interlanguage is not a state of mind: An evaluation of the construct for second-language acquisition. *Applied Linguistics,* 6, 2, 101-117.

Boyd, P. (1975). The development of grammar categories in Spanish by Anglo children learning a second language. *TESOL Quarterly,* 9, 2, 125-135.

Brinton, D., Snow, M., & Wesche, M. (1989). Putting content-based second language instruction in context. In Brinton, D., Snow, M., & Wesche, M.(Eds.) *Content-based second language instruction* (pp. 1-13). Boston, MA: Heinle and Heinle.

Bull, W. (1965). *Spanish for teachers: Applied Linguistics.* (pp. 103-110). New York: Ronald Press.

Cadierno, T. (1992). "Explicit instruction in grammar: A comparison of input-based and output-based instruction in second language acquisition". Unpublished dissertation, University of Illinois at Urbana-Champaign.

Cain, J., Weber-Olsen, M., & Smith, R. (1987). Acquisition strategies in a first and second language: Are they the same? *Journal of Child Language,* 14, 333-352.

Carroll, S., Swain, M., & Roberge, Y. (1992). The role of feedback in adult second language acquisition: Error correction and morphological generalizations. *Applied Psycholinguistics,* 13, 173-198.

Carroll, S., & Swain, M. (1993). Explicit and implicit negative feedback: An empirical study of the learning of linguistic generalizations. Language Acquisition, 15, 3, 357-386.

Chaudron, C. (1986). Teachers' priorities in correcting learners' errors in French immersion classes. In R. Day (Ed.) *Talking to learn: Conversation in second language acquisition* (pp. 64-84). Rowley, MA: Newbury House Publishers.

Chaudron, C. (1988). In Long, M., & Richards, J.(Eds.) *Second language classrooms: Research on teaching and learning*. Cambridge: Cambridge University Press.

Chastain, K. (1980). Native speaker reaction to instructor-identified student second language errors. *Modern Language Journal*, 64, 210-215.

Christian, D. (1996). Paper presented at GURT 1996. Georgetown University. "Language development in two-way immersion settings: Trends and prospects". March 1996.

Cohen, A. (1974a). The Culver City Spanish immersion program: The first two years. *Modern Language Journal*, 58, 1-2, 95-103.

Cohen, A. (1974b). The Culver City Spanish immersion program: How does summer recess affect Spanish speaking ability? *Language Learning*, 24, 1, 55-68.

Corder, S. (1967). The significance of learner's errors. *International Review of Applied Linguistics* 5, 161-170.

Corder, S. (1981). *Error analysis in interlanguage*. Oxford: Oxford University Press.

Craig, B. (1993). "The public as language planner: Promoting grassroots bilingualism". Unpublished Ph.D. dissertation. Georgetown University, Washington, DC.

Cummins, J. (1988). Second language acquisition within bilingual education. In Beebe, L. (Ed.) *Issues in second language: Multiple perspective*. Teachers College, Columbia University: Newbury House.

Day, E., & Shapson, M. (1991). Integrating formal and functional approaches to language teaching in French immersion: An experimental study. *Language Learning,* 41, 1, 25-58.

DeKeyser, R. (1998). Beyond focus on form: Cognitive perspectives on learning and practicing second language grammar. In Doughty, C., & Williams, J. (Eds.) *Focus on form in classroom SLA.* Cambridge University Press.

De Lozano, L. (1981). Enseñanza del subjuntivo a hispanohablantes. In Valdés, G., Lozano, A., & García-Moya, R. (Eds.) *Teaching Spanish to the Hispanic bilingual: Issues, aims and methods* (pp. 140-146) New York: Teacher's College, Columbia University.

Demetras, M., Post, K., & Snow, M. (1986). Feedback to first language learners: The role of repetitions and clarification questions. *Journal of Child Language,* 13, 275-292.

Doughty, C. (1991). Second language instruction does make a difference: Evidence from an empirical study of relativization. *Studies in Second Language Acquisition,* 13, 4, 431-461.

Doughty, C. (1993a). "Focus on Form: research and pedagogical issues". Paper presented at Georgetown University round table. Applied Linguistics Pre-session. March 1993.

Doughty, C. (1993b). "Fine tuning of feedback by competent speakers to language learners". Paper presented at GURT, Georgetown University. March 1993.

Doughty, C., & Williams, J. (1998). *Focus on form in classroom SLA.* Cambridge University Press.

Doughty, C., & Varela, E. (1998). Communicative Focus on

Form. In Doughty, C., & Williams, J. (Eds.) *Focus on form in classroom SLA*. Cambridge University Press.

Eckman, F. (1977). Markedness and the contrastive analysis hypothesis. *Language Learning*, 27, 315-30.

Eckman, F., Bell, L., & Nelson, D. (1988). On the generalization of relative clause instruction in the acquisition of English as a second language. *Applied Linguistics,* 9, 1, 1-20.

Ellis, N. (1994). *Implicit and explicit learning of languages*. London: Academic Press.

Ellis, R. (1984). Can syntax be taught? A study on the effects of formal instruction on the acquisition of WH-questions in children. *Applied Linguistics,* 5, 2, 138-155.

Ellis, R. (1990). *Instructed second language acquisition*. Oxford: Blackwell.

Ellis, R. (1993a). Second language acquisition and the structural syllabus. *TESOL Quarterly,* 27, 91-113.

Ellis, R. (1994a). *The study of second language acquisition*. Oxford: Oxford University Press.

Ellis, R. (1994b). A theory of instructed second language acquisition. In N. Ellis (Ed.) *Implicit and explicit learning of languages*. London: Academic Press.

Ellis, R. (1995). Interpretation tasks for grammar teaching. *TESOL Quarterly,* 28, 87-107.

Ervin-Tripp, S. (1974). Is second language learning like the first? *TESOL Quarterly,* 8, 2, 111-127.

Faerch, C., & Kasper, G. (1986). The role of comprehension in second language learning. *Applied Linguistics,* 7, 3, 257-274.

Farrar, M. (1990). Discourse and the acquisition of grammatical morphemes. *Journal of Child Language*, 17, 607-624.

Finnemann, M. (1990). Markedness and learner strategy: Form-and meaning-oriented learners in the foreign language context. *The Modern Language Journal*, 74, ii, 179-187.

Finnemann, M. (1992). Learning agreement in the noun-phrase: The strategies of three first year Spanish students. *IRAL*, 30, 2, 121-136.

Fotos, S. (1993). Consciousness-raising and noticing through focus on form: Grammar task performance versus formal instruction. *Applied Linguistics*, 14, 385-407.

Fotos, S. (1994). Integrating grammar instruction and communicative language use through grammar consciousness raising tasks. *TESOL Quarterly*, 28, 2, 322-351.

Gass, S. (1979). Language Transfer and universal grammatical relations. *Language Learning*, 29, 327-344.

Gass, S., & Selinker, L. (1994). *Second Language Acquisition. An introductory course*. Hillsdale, N.J: Erlbaum Associates.

Genesee, F. (1983). An invited article. Bilingual education of majority-language children: The immersion experiments in review. *Applied Psycholinguistics*, 4, 1, 1-46.

Genesee, F. (1984). Historical and theoretical foundations of immersion education. In Day, E., & Shapson, S. (Eds.) *Studies in immersion education*. Clevedon; Philadelphia: Multilingual Matters (1996).

Genesee, F. (1987). *Learning through two languages:*

Studies of immersion and bilingual education. New York: Newbury House.

Gili Gaya, S. (1985). *Curso superior de sintaxis española*. Barcelona: Bibliograf.

Givón, T. (1984). *Syntax, a functional-typological introduction,* Vol.1 (pp.364-375). Philadelphia: Benjamins.

Greenberg, J. H. (1966). *Language universals with special reference to feature hierarchies*. The Hague: Mouton Publishers.

Harley, B. (1986). *Age in second language acquisition*. Clevedon: Multilingual Matters.

Harley, B. (1989). Functional grammar in French immersion: A classroom experiment. *Applied Linguistics,* 10, 3, 331-359.

Harley, B. (1993). Instructional strategies and SLA in early French immersion. *Studies in Second language Acquisition,* 15, 245-259.

Harley, B. (1994). Appealing to consciousness in the L2 classroom. *AILA REVIEW,* 11, 57-67.

Harley, B. (1998). The role of form-focused tasks in promoting the second language acquisition of children in grade 2. In Doughty, C., & Williams, J. (Eds.) *Focus on form in classroom SLA*. Cambridge University Press.

Harley, B., & Swain, M. (1984). The interlanguage of immersion students and its implication for second language teaching. In Davies, A., Criper, C., & Howatt, A.P.R. (Eds.) *Interlanguage* (pp.291-311). Edinburgh, Scotland: Edinburgh University Press.

Harley, B., Allen, P., Cummins, J., & Swain, M. (1990). The nature of language proficiency. In Harley, B., Allen, P., Cummins, J., & Swain, M. (Eds.) *The development of second language proficiency* (pp. 7-25). Cambridge: Cambridge University Press.

Hatch, E., & Lazaraton, A. (1991). *The research manual. Design and statistics for applied linguistics.* Boston, MA: Heinle and Heinle Publishers.

Hidalgo, M. (1993). The teaching of Spanish to bilingual Spanish-speakers: A problem of inequality. In Merino, B., Trueba, H., & Samaniego, F. (Eds.) *Language and culture learning: Teaching Spanish to native speakers of Spanish.* Washington, DC: The Falmer Press.

Hyltenstam, K. (1987). Markedness, language universals, language typology, and second language acquisition. In C. Wollman Pfaff (Ed.) *First and second language acquisition processes* (pp.56-78). Cambridge: Newbury House Publishers.

Hulstijn, J., & Schmidt, R. (1994). Consciousness in second language learning. *AILA review,* 11.

Jourdenais, R., Ota, M., Stauffer, S., Boyson, B., & Doughty, C. (1995). Does textual enhancement promote noticing? A think-aloud protocol analysis. In R. Schmidt (Ed.) *Attention and awareness in foreign language learning* (Technical Report #9) (pp. 217-258). Honolulu, Hawai'i: University of Hawai'i, Second Language Teaching and Curriculum Center.

Karmiloff-Smith, A. (1986) From meta-process to conscious access: Evidence from children's metalinguistic and repair data. *Cognition,* 23, 95-147.

Keenan, E., & Comrie, B. (1977). Noun phrase accessibility and universal grammar. *Linguistic Inquiry,* 8, 63-99.

Kellerman, E. (1978). Giving learners a break: Native language intuitions as a source of predictions about transferability. *Working Papers on Bilingualism*, 15, 59-92.

Kowal, M., & Swain, M. (1994). "From semantic to syntactic processing: How can we promote it in the immersion classroom?" *Ontario Institute for Studies in Education*. February 1994.

Krashen, S. (1978). The monitor model for second language acquisition. In R. Gingras (Ed.), *Second language acquisition and foreign language teaching* (pp. 1-26). Center for Applied Linguistics, Washington, DC.

Krashen, S. (1982) *Principles and practice in second language acquisition*. New York, N.Y.: Pergamon Press.

Krashen, S. (1983). Newmark's ignorance hypothesis and current second language acquisition theory. In Gass, S., & Selinker, L. (Eds.) *Language transfer in language learning* (pp. 135-53). Rowley, MA: Newbury House.

Krashen, S. (1985). *The input hypothesis: Issues and implications* (pp. 16-17). Torrance CA: Laredo Publishing Company, Inc.

Krashen, S., Long, M., & Scarcella, R. (1979). Age, rate and eventual attainment in second language acquisition. *TESOL Quarterly*, 13, 573-582.

Lambert, W.E., (1980) The social psychology of language: A perspective for the 1980s. In Giles, H., Robinson, W.P., & Smith, P.M. *(Eds.) Language: Social-Psychological Perspectives*.(pp. 415-24). Oxford, Pergamon Press, Inc.

Larsen-Freeman, D., & Long, M. (1991). *An introduction to second language acquisition research*. London: Longman.

Leeman , J., Artegoitia, I., Fridman, B., & Doughty, C. (1995). Integrating attention to form with meaning: focus on form in content-based Spanish instruction. In Schmidt, R. (Ed.) *Attention and awareness in foreign language learning* (Technical Report #9) (pp. 217-258). Honolulu, Hawai'i: University of Hawai'i, Second Language Teaching and Curriculum Center.

Lehmann, C. (1988). On the function of agreement. In Barlow and Ferguson (Eds.) *Agreement in natural language. Approaches, theories, descriptions* (pp. 55-65). Menlo Park, CA: CSLI/SRI International.

Lightbown, P. (1985). Great Expectations: Second language acquisition research and classroom teaching. *Applied Linguistics*, 6, 2, 173-189.

Lightbown, P. (1991). What have we here? Some observations on the influence of instruction on L2 learning. In Phillipson, R., Kellerman, E., Selinker, L., Sharwood Smith, M., & Swain, M. (Eds.) *Foreign second language pedagogy research* (pp. 197-212). Clevedon, Philadelphia: Multilingual Matters Ltd.

Lightbown, P. (1992). Getting quality input in the second and foreign language classroom. In Kramsch, C., & McConnell Ginet, S. (Eds.) *Text and context: Crossdisciplinary and cross-cultural perspectives on language Study* (pp. 187-197). Lexington, MA: D.C. Heath.

Lightbown, P., Spada, N., & Wallace, R. (1980). Some effects of instruction on child and adolescent ESL learners. In Scarcella, R., & Krashen, S. (Eds.) *Research in second language acquisition*, (pp.162-72). Rowley, Mass: Newbury House.

Lightbown, P., & Spada, N. (1990). Focus on form and corrective feedback in communicative language teaching: Effects on second language learning. *Studies in Second Language Acquisition*, 12, 4, 429-

448.

Littlewood, T. (1981). Language variation and second language acquisition theory. *Applied Linguistics, 2,* 2, 150-158.

Long, M. (1983a). Linguistic and conversational adjustments to non-native speakers. *Studies in Second Language Acquisition,* 5, 2, 177-193.

Long, M. (1983b). Does second language instruction make a difference? A review of research. *TESOL Quarterly,* 17, 3, 359-382.

Long, M. (1985). Input and second language acquisition theory. In Gass, S., & Madden, C. (Eds.) *Input in second language acquisition* (pp. 377-393). Cambridge, MA: Newbury House Publishers.

Long, M. (1988). Instructed interlanguage development. In Beebe, L.M. (Ed.) *Issues in second language acquisition: Multiple perspectives* (pp. 115-41). Cambridge, MA: Newbury House Publishers.

Long, M. (1990). Maturational constraints on language development. *Studies in Second Language Acquisition,* 5, 177-193.

Long, M. (1991). Focus on Form: A design feature in language teaching and methodology. In de Bot, K., Coste, D., Kramsch, C., & Ginsberg, R. (Eds.) *Foreign language research in cross-cultural perspective* (pp. 39-52). Amsterdam, Philadelphia: John Benjamins.

Long, M., & Crookes, G. (1994). Three approaches to task-based syllabus design. *TESOL Quarterly,* 26, 1, 27-56.

Long, M., & Robinson, P. (1998). Theory research and practice. In Doughty, C., & Williams, J. (Eds.) *Focus on form in classroom SLA.* Cambridge University Press.

Loschky, L., & Bley-Vroman, R. (1993). Grammar and task-based methodology. In Crookes, G., & Gass, S. (Eds.) *Tasks and language learning. Integrating theory and practice.* (123-170). Avon, England: Multilingual Matters Ltd.

Lozano, A. (1981). A modern view of teaching grammar. In Valdés, G., Lozano, A., & García-Moya, R. (Eds.) *Teaching Spanish to the Hispanic bilingual: Issues, aims and methods* (pp.81-90). New York: Teacher's College, Columbia University.

Lyster, R. (1994). The effect of functional-analytic teaching on aspects of French immersion students' sociolinguistic competence. *Applied Linguistics,* 15, 3, 263-287.

McLaughlin, B. (1978). The monitor model: Some methodological considerations. *Language Learning,* 28, 309-332.

McLaughlin, B. (1987). *Theories of second language learning.* London: Edward Arnold.

McLaughlin, B. (1990). Restructuring. *Applied Linguistics,* 11, 2, 113-28.

Mellow, D., & Cumming, A. (1994). Concord in interlanguage: Efficiency or priming. *Applied Linguistics,* 15, 4, 442-471.

Merino, B., Trueba, H., & Samaniego, F. (1993). *Language and culture in learning: Teaching Spanish to native speakers of Spanish.* Washington, DC-London: The Falmer Press

Moravcsik, E. (1988). Agreement and markedness. In Barlow and Ferguson (Eds.) *Agreement in natural language. Approaches, theories, descriptions* (pp. 89-106). Menlo Park, CA: CSLI/SRI International.

Muranoi, H. (1996). "Effects of interaction enhancement on restructuring of interlanguage grammar: A cognitive approach to foreign language instruction". Unpublished dissertation, Georgetown University, Washington, DC.

Nunan, D. (1989). *Designing tasks for the communicative classroom*. Cambridge: Cambridge University Press.

Nunan, D. (1995). Closing the gap between learning and instruction. *TESOL Quarterly,* 29, 133-158.

Omaggio, A. (1986). *Teaching language in context: Proficiency oriented instruction*. Boston, MA: Heinle and Heinle Publishers.

Ortega, L., & Long, M. (1997). The effect of models and recasts on the acquisition of object topicalization and adverb placement in L2 Spanish. *SAL*, 1, 65-86.

Ovando, C., & Collier, V. (1985). *Bilingual and ESL classrooms: Teaching in multicultural contexts.* New York: McGraw-Hill Book Company.

Padilla, A., Fairchild, H., & Valadez, C. (1990). *Bilingual education: Issues and strategies*. Newbury Park: Sage Publications

Pavesi, M. (1986). Markedness, discoursal modes and relative clause formation in a formal and informal context. *Studies in Second Language Acquisition,* 8, 1, 38-55.

Pérez-Pereira, M. (1991). The acquisition of gender: What Spanish children tell us. *Journal of Child Language,* 18, 571-590.

Pica, T. (1983). Adult acquisition of English as a second language under different conditions of exposure. *Language Learning,* 33, 4, 465-497.

Pica, T. (1992). The textual outcomes of NS-NNS negotiation: What do they reveal about second language learning? In Kramsch, C., & McConnell Ginet, S. (Eds.) *Text and context: Crossdisciplinary and crosscultural perspectives on language study* (pp. 198-237). Lexington, MA: DC. Heath.

Pica, T. (1994). Research on negotiation: What does it reveal about second language learning conditions, processes and outcomes. *Language Learning,* 44, 3, 493-527.

Pica, T. (1995). "Teaching language and teaching language learners: The expanding roles and expectations of language teachers in communicative, content-based classrooms". Paper presented at GURT. Georgetown University, Washington, DC. March 1995.

Pica, T., & Long, M. (1986). The linguistic and conversational performance of experienced and inexperienced teachers. In Day, R. (Ed.) *Talking to learn. Conversation in second language acquisition* (pp. 85-98). Rowley, MA: Newbury House.

Pica, T., Kanagy, R., & Falodun, J. (1993). Choosing and using communication tasks for second language instruction and research. In Crookes, G., & Gass, S. (Eds.) *Tasks and language learning. Integrating theory and practice* (pp. 9-34). Avon, England: Multilingual Matters Ltd.

Pienemann, M. (1984). Psychological constraints on the teachability of languages. *Studies in Second Language Acquisition,* 6, 2, 186-212.

Pienemann, M. (1989). Is language teachable? *Applied Linguistics,* 10, 1, 52-79.

Pienemann, M., & Johnston, M. (1987). Factors influencing the development of language proficiency. In Nunan, D. (Ed.) *Applying second language acquisition research* (pp. 45-141). National Curriculum Resource Centre, Adult Migrant Education Program, Adelaide.

Pinker, S. (1989). *Learnability and cognition.* Cambridge, MA: MIT Press (pp. 9-16).

Plann, S. (1979). Morphological problems in the acquisition of Spanish in an immersion classroom. In Roger Andersen (Ed.) *The acquisition and use of Spanish and English as first and second languages* (pp. 119-132). Teachers of English to speakers of other languages. Washington, DC.

Prado, M. (1982). El género español y la teoría de la marcadez. *Hispania,* 65, 258-66.

Robinson, P. (1995). Review article. Attention, memory and the "noticing" hypothesis. *Language Learning,* 45, 2, 283-331.

Robinson, P. (1996). Learning simple and complex second language rules under implicit, incidental, rule search, and instructed conditions. *Studies in Second Language Acquisition,* 18, 27-67.

Rutherford, W., (1982). Markedness in second language acquisition. *Language Learning,* 32, 1, 82-108.

Rutherford, W., (1984). Description and explanation in interlanguage syntax: State of the art. *Language Learning,* 34, 3, 127-155.

Rutherford, W., & Sharwood Smith, M. (1985). Consciousness raising and universal grammar. *Applied Linguistics,* 6, 3, 274-282.

Rutherford, W., & Sharwood Smith, M. (Eds.) (1988). *Grammar and Second language teaching: A book of readings.* New York: Newbury House/Harper and Row.

Schachter, J. (1984). A universal input condition. In Rutherford, W. (Ed.) *Language universals and second language acquisition* (pp. 167-183). Amsterdam, Philadelphia: John Benjamins.

Schachter, J. (1986). Three approaches to the study of input. *Language Learning,* 36, 2, 211-225.

Schachter, J. (1991). Corrective feedback in historical perspective. *Second Language Research,* 7, 89-102.

Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics,* 11, 2, 129-158.

Schmidt, R. (1993). Consciousness, learning and interlanguage pragmatics. In Kasper, G., & Blum-Kulka, S. (Eds.) *Interlanguage pragmatics* (pp. 21-42). Oxford: Oxford University Press.

Schmidt, R. (1994). Deconstructing consciousness in search of useful definitions for applied linguistics. *AILA Review,* 11, 11-26.

Schmidt, R., & Frota, S. (1986). Developing basic conversational ability in a second language: A case study of an adult learner of Portuguese. In Day, R. (Ed.) *Talking to learn. Conversation in second language acquisition* (pp. 237-326). Rowley, MA: Newbury House.

Seliger, H., & Long, M. (1983). *Classroom oriented research in second language acquisition.* Seliger, H., & Long, M. (Eds). Rowley, MA: Newbury House Publishers.

Selinker, L. (1972). Interlanguage. *International Review of Applied Linguistics,* 10, 209-231.

Selinker, L., & Lamendella, J. (1979). The role of extrinsic feedback in interlanguage fossilization-a discussion of "Rule fossilization: A tentative model". *Language Learning,* 29, 2, 363-375.

Sharwood Smith, M. (1981). Consciousness-raising and the second language learner. *Applied Linguistics,* 2, 159-168.

Sharwood Smith, M. (1985). From input to intake: On argumentation in SLA. In Gass and Madden (Eds.) *Input in second language acquisition* (pp. 394-403). Cambridge, MA: Newbury House.

Sharwood Smith, M. (1986). Comprehension vs. acquisition: Two ways of processing input. *Applied Linguistics*, 7, 3, 239-256.

Sharwood Smith, M. (1991). Speaking to many minds: On the relevance of different types of language information for the second language learner. *Second Language Research*, 7, 2, 118-132.

Sharwood Smith, M. (1993). Input enhancement in instructed second language acquisition: Theoretical bases. *Studies in Second Language Acquisition*, 15, 2, 165-180.

Sharwood Smith, M. (1994). The unruly world of language. In N. Ellis (Ed.) *Implicit and explicit learning of languages* (pp.33-43). London: Academic Press.

Singleton, D. (1989). *Language acquisition: The age factor*. Clevedon: Multilingual Matters Ltd.

Slobin, D. (1979). *Psycholinguistics*. Glenview, Illinois: Scott Foresman and Company.

Slobin, D. (1985). *The cross-linguistic study of language acquisition*. New Jersey: Erlbaum, Hillsdale.

Snow, M., Met, M., & Genesee, F. (1989). A conceptual framework for the integration of language and content in the second and foreign language instruction. *TESOL Quarterly*, 23, 2, 201-217.

Spada, N. (1990). Observing classroom behaviors and learning outcomes in different second language programs. In Richards, J., & Nunan, D. (Eds.) *Second language teacher education* (pp. 293-310). Cambridge: Cambridge University Press.

Spada, N. (1997). Form-focussed instruction and second language acquisition: A review of classroom and laboratory research. *Language Teaching,* 30, 73-87.

Spada, N., & Lightbown, P. (1993). Instruction and the development of questions in the L2 classroom. *Studies in Second Language Acquisition,* 15, 205-224.

Spanos, G. (1990). On the integration of language and content instruction. *Annual Review of Applied Linguistics,* 10, 227-240.

Staczek, J. and F. Aid (1981). Hortographía himortal: Spelling problems among bilingual students. In Valdés, G., Lozano, A., & García-Moya, R. (Eds.) *Teaching Spanish to the Hispanic bilingual: Issues, aims and methods* (pp. 146-156) New York: Teacher's College, Columbia University.

Stein, M. (1995). "What's in a fashion show?: A FonF task in the Spanish language classroom". Unpublished paper presented at the seminar in Research and Statistics, May 1995. Georgetown University, Washington, DC.

Stern, H. (1983). *Fundamental concepts of language teaching.* Oxford: Oxford University Press.

Stern, H. (1990). Analysis and experience as variables in second language pedagogy. In Harley, B., Allen, P., Cummins, J., & Swain, M. (Eds.) *The development of second language proficiency* (pp. 93-109). New York, New York: Cambridge University Press.

Stevens, F. (1984). *Strategies for second language acquisition.* Montreal: Eden Press.

Stevick, E. (1980). *A way and ways* (pp. 267-282). Rowley, MA: Newbury House Publishers.

Swain, M. (1985). Communicative competence: Some roles of comprehensible input and comprehensible output in its development. In Gass, S., & Madden, C. (Eds.) *Input in second language acquisition* (pp. 235-256). Cambridge, MA: Newbury House Publishers.

Swain, M. (1991). Manipulating and complementing content teaching to maximize second language learning. In Phillipson, R., Kellerman, E., Selinker, L., Sharwood Smith, M., & Swain, M. (Eds.) *Foreign second language pedagogy research* (pp. 235-254). Clevedon, Philadelphia: Multilingual Matters Ltd.

Swain, M., & Lapkin, S. (1989). Canadian immersion and adult second language teaching: What's the connection? *Modern Language Journal,* 73, 150-159.

Swain, M., & Lapkin, S. (1995). Problems in output and the cognitive processes they generate: A step towards second language learning. *Applied Linguistics,* 16, 3.

Swain, M. (1998). Focus on form through conscious reflection. In Doughty, C., & Williams, J. (Eds.) *Focus on form in classroom SLA.* Cambridge University Press.

Tannen, D. (1981). The machine-gun question: An example of conversational style. *Journal of Pragmatics,* 5, 5, 383-397.

Terrell, T. (1991). The role of grammar instruction in a communicative approach. *Modern Language Journal,* 75, 1, 52-63.

Thomas, W., Collier, V., & Abbott, M. (1993). Academic achievement through Japanese, Spanish or French: The first two years of partial immersion. *Modern Language Journal,* 77, 170-179.

Tomasello, M., & Herron, C. (1988). Down the garden path: Inducing and correcting overgeneralization errors in the foreign language classroom. *Applied Pycholinguistics,* 9, 237-246.

Tomasello, M., & Herron, C. (1989). Feedback for language transfer errors: The garden path technique. *Studies in Second Language Acquisition*, 11, 4, 385-395.

Tomlin, R., & Villa, V. (1994). Attention in cognitive science and second language acquisition. *Studies in Second Language Acquisition*, 16, 183-203.

Valdés, G., Lozano, A., & García-Moya, R. (1981). *Teaching Spanish to the Hispanic bilingual: Issues, aims and methods*. New York: Teacher's College, Columbia University.

Valdés, G., (1995). The teaching of minority languages as academic subjects: Pedagogical and theoretical challenges. *The Modern Language Journal*, 79, 299-328.

Van Naerssen, M. (1986). Hipótesis sobre la adquisición de una segunda lengua, consideraciones inter-lenguaje: Comprobación en el español. In Juergen M. Meisel (Ed.) *Adquisición de lenguaje: Comprobación en el español* (pp. 139-155). Frankfurt: Vervuert.

VanPatten, B. (1990). Attending to form and content in the input. *Studies in Second Language Acquisition*, 12, 287-301.

VanPatten, B. (1993). Grammar teaching for the acquisition-rich classroom. *Foreign Language Annals*, 26, 4, 435-450.

VanPatten, B. (1994). Cognitive aspects of input processing in second language acquisition. In Hashemipour, P., & Maldonado, R. (Eds.) *Festschrift in honor of Tracy D. Terrell*. New York: McGraw-Hill.

VanPatten, B. (in press). Processing Instruction. *Theory, research, challenges, implications*. The University of Illinois at Urbana-Champaign.

VanPatten, B., & Oikkenon, S. (1996). Explanation versus structured input in processing instruction. *Studies in Second Language Acquisition,* 18, 495-510.

VanPatten, B., & Cadierno, T. (1993). Explicit instruction and input processing. *Studies in Second Language Acquisition,* 15, 2, 225-244.

VanPatten, B., & Sanz, C. (1994). "From input to output: Processing instruction and communicative tasks". Unpublished manuscript. The University of Illinois at Urbana-Champaign.

Weissenrieder, M. (1995). Indirect object doubling: Saying things twice in Spanish. *Hispania,* 78, 169-177.

Whitcher, A. (1995). "Spanish listening and speaking assessment of Abingdon Elementary School partial immersion second grade students". Center for Applied Linguistics, Washington, DC.

White, J. (1998). Getting the learner's attention: a typographical input enhancement study. In *Focus on form in classroom SLA*. Doughty, C., & Williams, J. (Eds.). Cambridge University Press.

White, L. (1987). Against comprehensible input: The input hypothesis and the development of second language competence. *Applied Linguistics,* 8, 2, 95-110.

White, L. (1991). Adverb placement in second language acquisition: some effects of positive and negative evidence in the classroom. *Second Language Research,* 7, 133-161.

White L., Spada, N., Lightbown, P., & Ranta, L. (1991). Input enhancement and L2 question formation. *Applied Linguistics,* 12, 417-432.

Whitley, S. (1986). *Spanish/English contrasts. A course in Spanish linguistics*. Georgetown University Press.

Washington, DC.

Williams, J., & Evans, J. (1998). What kind of focus on which forms? In Doughty, C., & Williams, J. (Eds.). *Focus on form in classroom SLA*. Cambridge University Press.

Young, R. (1993). Functional constraints on variation in interlanguage morphology. *Applied Linguistics,* 14, 1, 76-97.

Zobl, H. (1983). Markedness and the projection problem. *Language Learning,* 33, 3, 293-313.

Zobl, H. (1985). Grammars in search of input and intake. In Gass, S., & Madden, C. (Eds.) *Input in second language acquisition* (pp. 329-344). Cambridge, MA: Newbury House Publishers.